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Number 5.

FEBRUARY, 1909.

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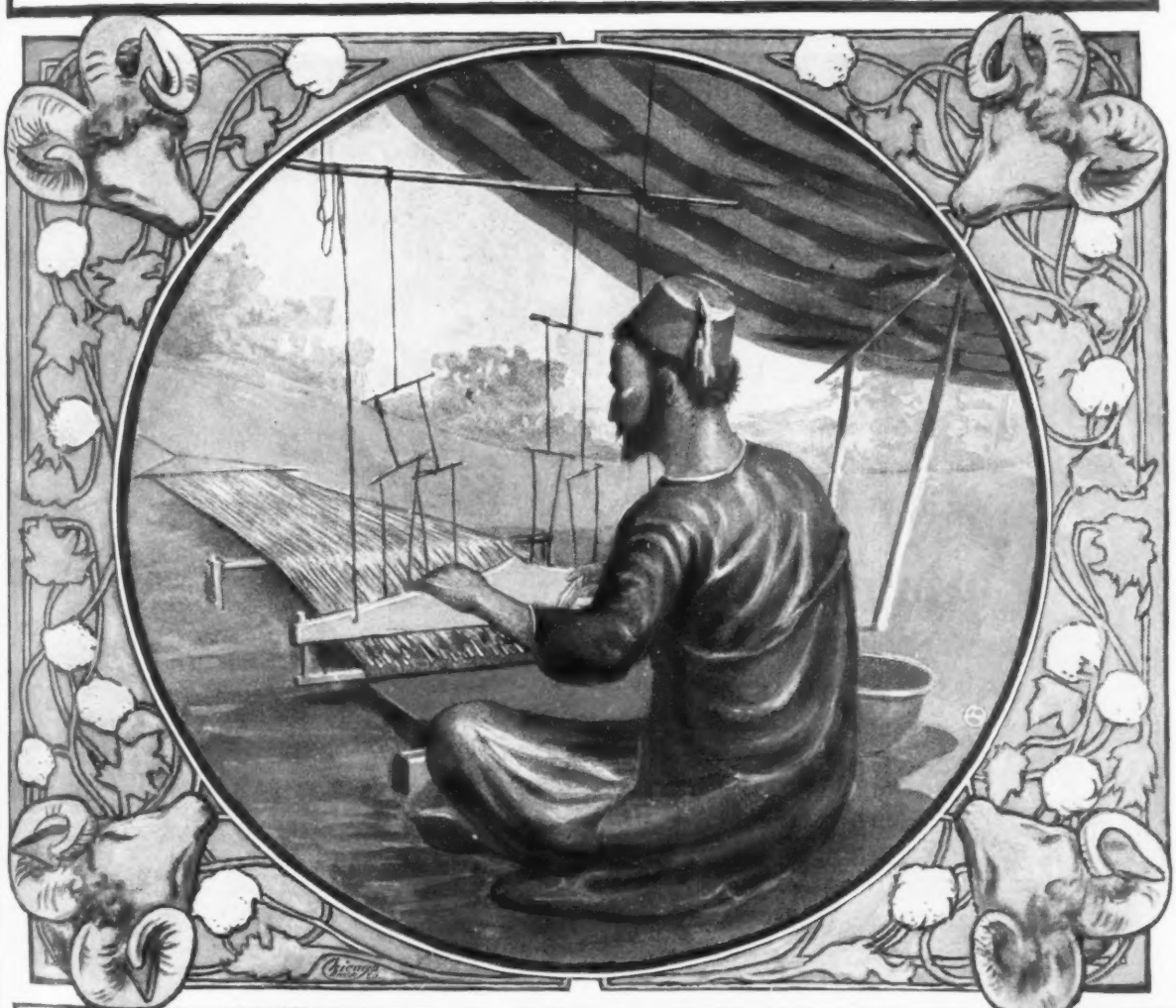
$3.00 with Directory.

TEXTILE WORLD RECORD

PERIODICAL DIV
FEB 13 1909



LORD & NAGLE COMPANY ~ BOSTON · MASS.

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The Textile-Finishing Machinery Co.

HOWARD BUILDING

STAIRWAYS, 83 EXCHANGE PLACE [ENTRANCES] ELEVATOR, 171 WESTMINSTER ST

PROVIDENCE, R. I.

BUILDERS OF ALL KINDS OF

MACHINERY

FOR

BLEACHING
DYEING
DRYING
AND
FINISHING

Singeing Machines,

Boiling Kiers,

Washers, Squeezers,

Chemic and Sour

Rusden Patent

Continuous Chainless

Steamer,

Aniline Agers.

Dyeing Machines,

Open Soapers,

Blanket Washers,

Color Kettles,

Horizontal or Vertical Drying Machines, with Copper or Tinned Iron Cylinders,

Automatic Tentering Machines,

Water and Starch Mangles,

Dampening Machines,

Dyeing Machines for Chain Warps.

Calenders for Rolling, Glazing, Chasing and Embossing, also Calenders for Moire Finish.

Sole Manufacturers of Patented Flexible Cloth Expander for Cylinder Drying Machines, Calenders, Mangles, &c.

Patent Combination Rolls Made of Cotton and Husk, especially adapted for Soft Finish, Unequalled for Elasticity and Durability.

Cotton, Paper, Husk, Chilled Iron, Brass and Rubber Rolls, Electro-deposited Copper Rolls for all Purposes.

Padding and Drying Machines for Shade Cloths.

Single and Double Cylinder Engines.

Hydraulic Presses and Pumps.

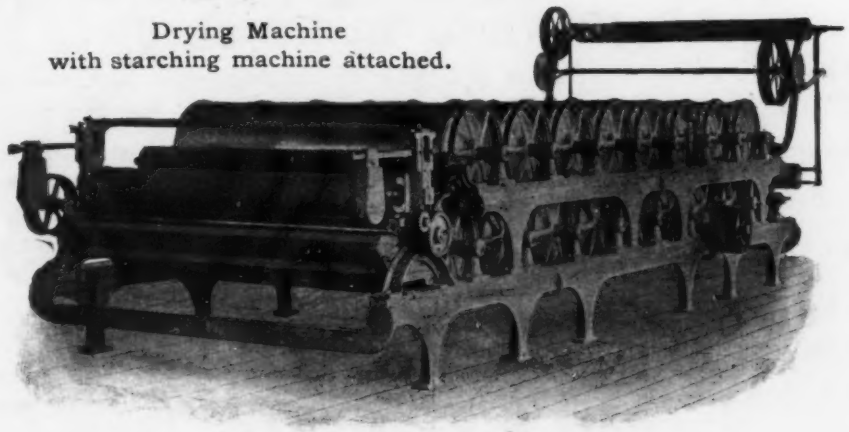
Mercerizing Machinery for Piece Goods and Yarn in the Warp or Chain

ALL KINDS OF OUTFITS FOR BLEACHING THREAD AND SOFT TWISTED YARN.
BLEACHING MACHINERY FOR YARNS IN THE WARP OR CHAIN.

Estimates, Drawings and full particulars of complete plants furnished on application

Southern Agent, STUART W. CRAMER, Charlotte, N. C., Equitable Building, Atlanta, Ga.

Drying Machine
with starching machine attached.



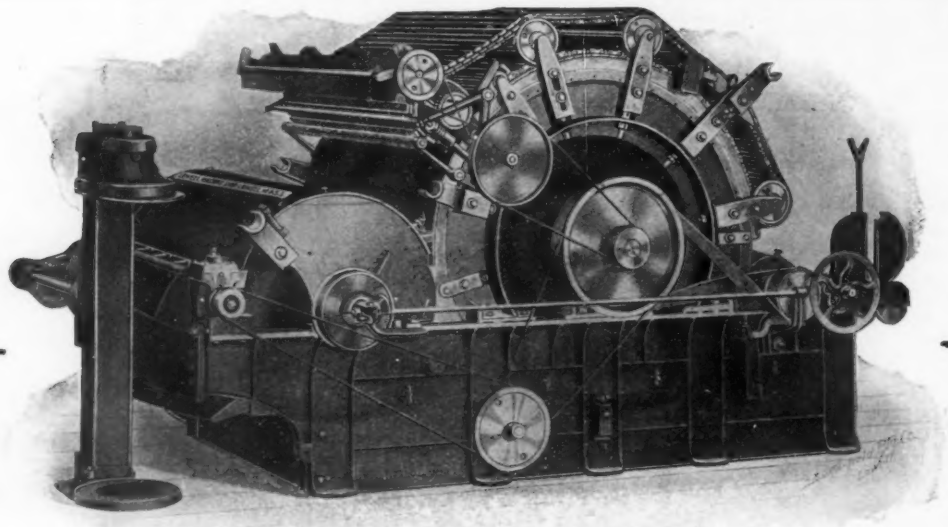
Bleaching,
Drying,
Dyeing,
Finishing,
Machinery

for all textile fabrics.

H. W. BUTTERWORTH & SONS CO.

PHILADELPHIA, PA.

Providence Office, Room 417 Industrial Trust Building.



Cotton and Worsted Machinery

With Modifications to Suit Any Class of Work.

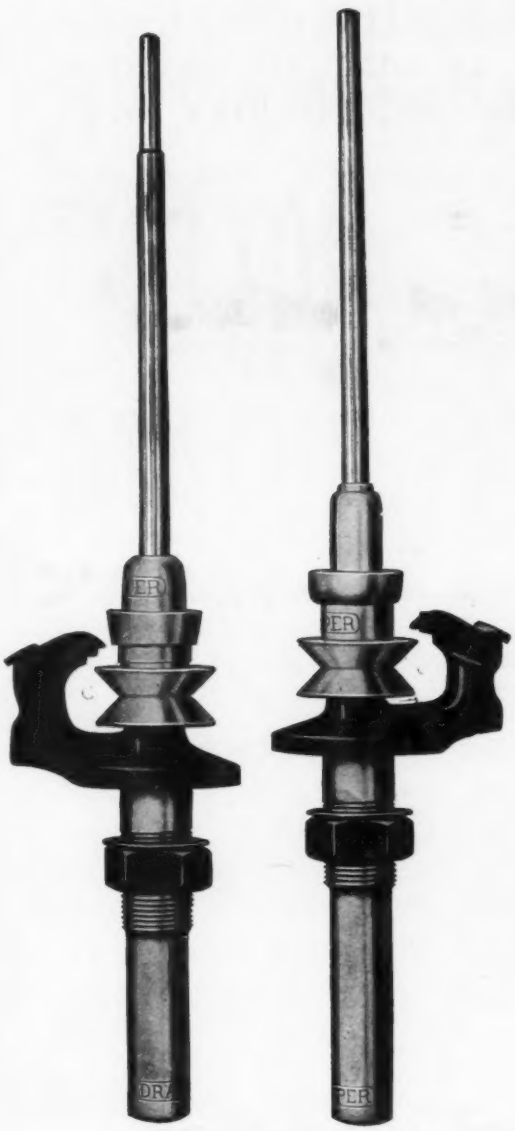
Cotton Machinery: Cards, Railway Heads, Drawing Frames, Fly Frames, Speeders, Ring Spinning Frames, Twisters, Spoolers, Reels, Warpers, Slashers, Winders, Looms, Shearing Machines, Balling Machines, Folders, Stamping Machines, Sewing Machines, Size Pumps, Size Kettles, Drawing-in Frames, Baling Presses, Indigo Grinders.

Worsted Machinery: Spinning Frames with caps, rings or flyers, Dandy Rovers and Reducers, Cone Second Finishers, Reducers and Rovers, Gill Boxes for Drawing, Preparing and Finishing, Weigh Boxes and Drawing Boxes, Cap Trap, Flyer and Ring Twisters.

Plans, Specifications and Estimates furnished upon application.

Lowell Machine Shop

LOWELL, MASS.



Two New
Large Size
Spinning Spindles.

We make

Draper,
Whitin,
McMullan

and other
types of

Spindles;

also

Northrop Looms,

Twisters,
Warpers,
Spoolers,
Reels,

Banding Machines,

etc., etc.

Draper Company,
HOPEDALE,
MASS.

THE EMPHATIC SUCCESS OF OUR "IDEAL" AUTOMATIC LOOM IS DUE TO SEVERAL SALIENT POINTS OF SUPERIORITY OVER ALL COMPETITORS:

1st. The ease and smoothness with which they start up.

2d. The acknowledged superiority of the cloth woven.

3d. Simple and thoroughly mechanical construction, assuring freedom from the constant breakage and expensive repairs attending other automatic looms.

4th. No special bobbins, shuttles or other expensive parts.

5th. Ability to use cop or bobbin filling interchangeably.

6th. Superiority of warp stop motion which does not break or fray the softest yarn.

7th. Of the thousands in operation not a single bobbin or crank shaft broken.

IN PROOF OF CLAIMS WE POINT TO THOSE MILLS FORMERLY USING OUR COMPETITORS' LOOMS THAT ARE NOW USING OURS.

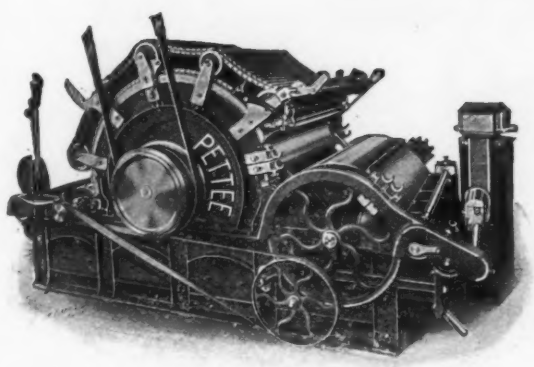
The Stafford Company

Readville, Mass.

Saco and Pettee Machine Shops

NEWTON UPPER FALLS, MASS., U. S. A.

COTTON MACHINERY



Revolving
Flat Cards,
Drawing
Frames,
Railway Heads,
Slubbing,
Intermediate
and
Roving
Frames,
Spinning Frames,
Spoolers
and
Reels.

Shops—

Biddeford, Me.

Newton Upper Falls, Mass.

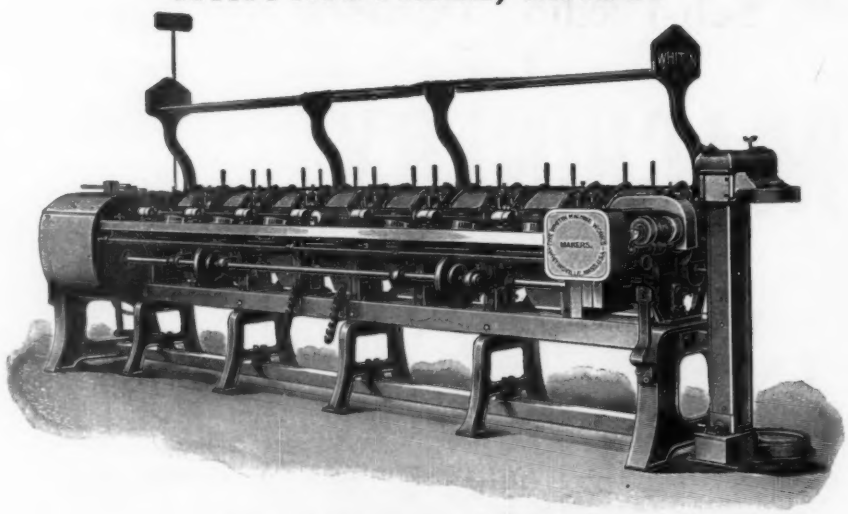
Southern Agent, A. H. WASHBURN, Charlotte, N. C.

THE

WHITIN MACHINE WORKS,

Cotton Machinery

WHITINSVILLE, MASS.



HIGH SPEED COMBER 1906 MODEL.

Revolving Flat Carding Engines,
Sliver Lap Machines,
Ribbon Lap Machines, Combers,
Railway Heads, Drawing Frames,
Spinning Frames, Spoolers, Twisters,
Long Chain Quilling Machines, Reels, Looms.

Southern Agent,
S. W. CRAMER

Trust Building, CHARLOTTE, N. C.
Equitable Building, ATLANTA, GA.

"Kitson Products"

Blowing Systems

For Conveying Bale Cotton
from Storehouse to Picker-room

Self-Feeding Openers
Lappers and
Cleaning Trunks

Waste-Working Machinery

Raw Stock Cotton Dryers

We own the Patterns and can furnish REPAIR PARTS for PICKERS
formerly built by

WHITEHEAD & ATHERTON, . Lowell, Mass.
ATHERTON MACHINE CO., - - Lowell, Mass.
A. T. ATHERTON MACHINE CO., Pawtucket, R. I.

Kitson Machine Shop

Lowell, Mass.

SCOTT & WILLIAMS

2079 E. Cumberland Street, Philadelphia, Pa., U. S. A.

BUILDERS OF

Full Particulars, Samples and Special Catalogues on Application.

Rib Knitting Machinery for Underwear and Hosiery

Plain, Single Lever or with Welt, Slack Course and Automatic Slackening Device for Welt.

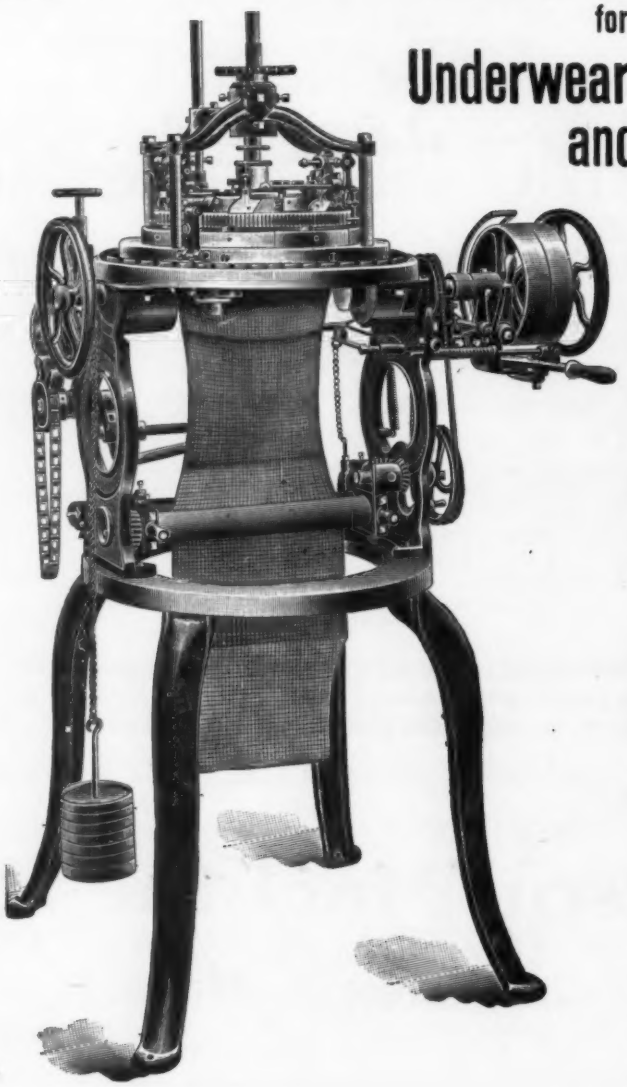
Improved Measuring Device, by actual length knit.

Sizes 8 to 24 inches, inclusive, varying by one inch.

Number of Feeds, 4 to 12, according to style and diameter of machine.

Solid Forged Steel Cylinders, specially hardened or with patent inserted walls for fine fabric.

Special Machinery for Sweaters, etc.



The illustration shows our

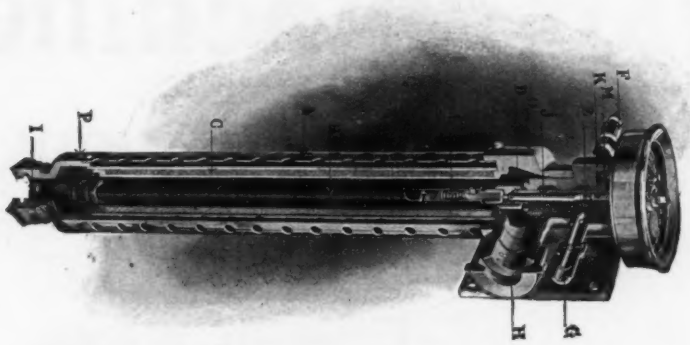
Improved High Speed Single Lever Automatic Ribbed Underwear Machine

for making ladies' and gents' ribbed underwear, union suits, etc., plain and shaped.

We build Loopers, Ribbers and other Machinery for Knitting Mills

As well as

A Complete Line of Full Automatic and 7-8 Automatic Seamless Hosiery Machinery.



The Carrier Differential Thermostat

A device for automatically regulating the percentage of humidity regardless of the temperature

There are no delicate parts or electrical connections to require adjusting.

No damp cloths to be kept wet. Does not depend for operation upon the absorption of moisture from the air by wood or other material.

Our Regulating Devices work on the principle of the difference in temperature between the Room Temperature and the Wet Bulb or Dew Point temperatures, depending upon the system of Air Conditioning used.

It is positive and reliable.

It is the most accurate instrument invented.

It is constructed on correct scientific principles.

It is extremely simple in construction and operation.

It is guaranteed to regulate the percentage of humidity within two per cent.

It is adapted for use either in connection with the Carrier System of Humidifying or with any other system.

It can be applied to old installations of any make as well as new systems.

Carrier Air Conditioning Co.

of America

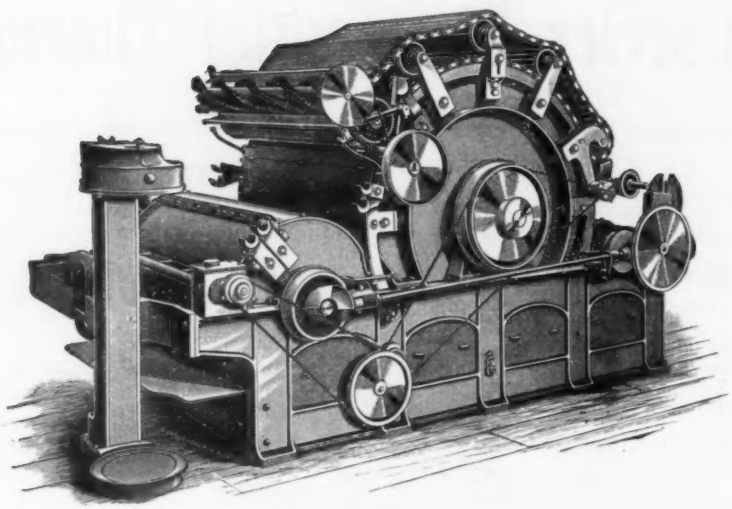
101 C **39 Cortlandt Street, NEW YORK**

Cotton Machinery

MASON MACHINE WORKS,

TAUNTON, MASS.

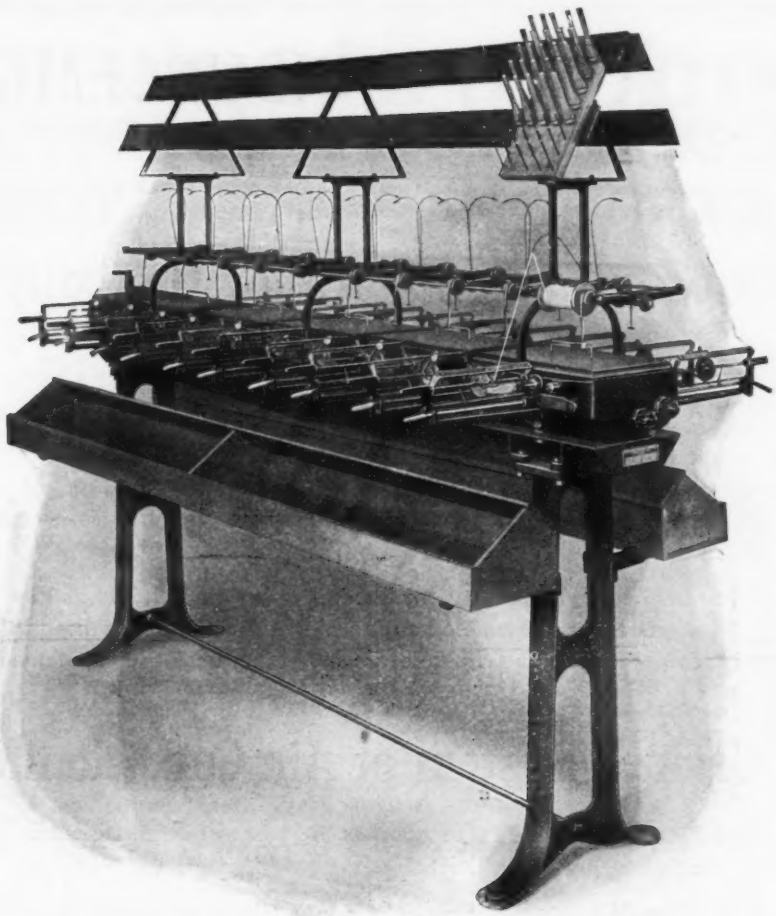
Southern Office,
Charlotte,
N. C.



Cards,
Combers, Railway
Heads, Drawing Frames
Spinning Frames, Mules and Looms

INCLUDING

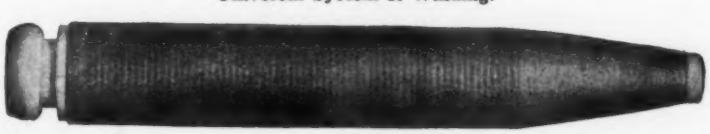
Plain and Fancy Silk Looms



Universal No. 90 With Unrolling Supply for Silk Quilling

A self-oiling high speed machine for quilling fine trams or douppione on box wood bobbins and paper tubes. Interchangeable parts for over end supply for worsted and cotton filling.

No. 90 presents to the industry of weaving the advantage and economies of the "Universal System of Winding."



Universal Winding Co.

95 South Street, Boston, Mass., U. S. A.

International Winding Company

Saville Street, Oxford Road, Manchester, England

16 St. Johannvorstadt, Basel, Switzerland

IMPORTANT ANNOUNCEMENT

Manufacturers are hereby warned against using infringements upon the Cramer patents for

Automatic Regulators for Humidifying Systems

Before considering the purchase of infringing devices, make sure that the vendor is amply financially responsible and guarantees to imdemnify the purchaser against loss by damage suits, for both infringers and users of infringements, however crude such infringements may be, will be prosecuted to the full extent of the law.

Don't be imposed upon by misleading terms and claims as to what the vendor's patents cover; anyone can get a patent for almost anything in the way of specific constructions; the vital question is whether or not such patents infringe other prior patents.

Cramer System of Air Conditioning

Spray Humidifiers as good as the best, of large capacity, durable, sanitary, air cleansing and efficient.

Air Conditioners *comprising all the good points of spray humidifiers*, particularly as to large moistening capacity and simplicity; *combined with the good points of evaporation types of humidifiers*, such as complete evaporation of the moisture, large air cleansing capacity and good distribution; *and without the objectionable features of either type*, such as wetting down, localized moistening, large and clumsy constructions, unsanitary conditions due to difficulty of access for cleaning and to the use of wet absorbent disease-breeding materials, and largely reduced efficiencies at all except the lowest humidities,—*features*, simplicity, durability comprising only seamless drawn sheet copper casings, a spray nozzle and a fan. The fans are either electrical driven, or mechanically driven with belts or ropes as the special requirements of each case dictate.

STUART W. CRAMER

Providence, R. I. **Charlotte, N. C.** **Atlanta, Ga.**

EVAN ARTHUR LEIGH

232 Summer Street (opposite the South Station), Boston, Mass.

SOLE AGENT

IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen and Worsted Machinery

Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Waste into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery.
Archbutt-Deeley System for purifying and softening water.

GEORGE HODGSON, LTD.

Looms for Worsteds, etc.

THE PATENT AUTOMATIC FEEDING MACH. CO., LTD.

Patent Feeding Machines for wool, cotton, flax, fur and fibrous material.

JOSEPH SYKES BROS.,
Card Clothing for Cotton.

JAMES CRITCHLEY & SONS,
Card Clothing for Woolen and Worsted.

WILSON BROS. BOBBIN CO.'S.

Bobbins, Shuttles, etc.

Dronsfield Bros. Grinding Machinery and Emery Filleting. The Best French and English Combing and Rubbing Aprons. Harding's Pins and Circles. Varey's Fallers, etc.

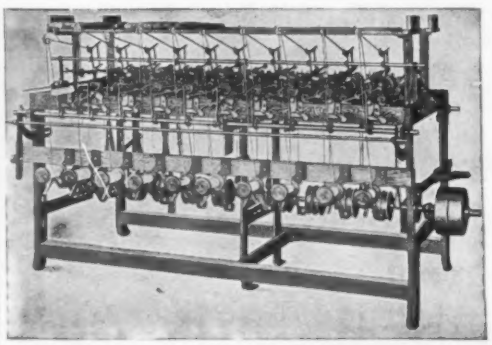
OSWALD LEVER CO.

(Formerly LEVER & GRUNDY.)

Lehigh Ave. and Mascher Sts., PHILADELPHIA, PA.

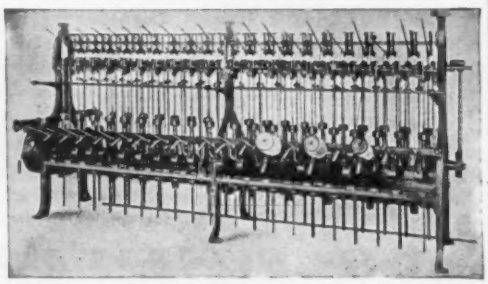
MANUFACTURERS OF TEXTILE MACHINERY.

SOLE MAKERS OF OUR PATENTED SPECIALTIES IN THE UNITED STATES.

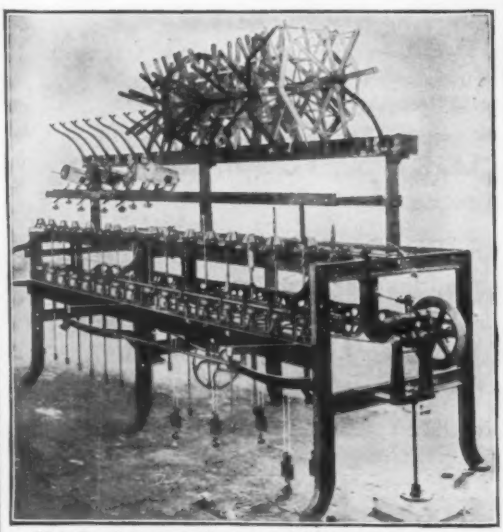


This Machine may be arranged to wind from skeins, spools, cones, or any kind of spinning bobbins. Most suitable machine for cotton or woolen blankets.

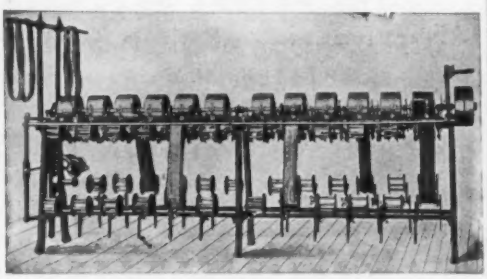
Conical and Parallel Tube Winding Machines; Warping Machines and Creels; Brass Bobbin Winding and other Machinery for lace mills; Chenille Cutting Machines, Sectional Warping Mill, Beaming Machines, etc; Cop Winding Machines for butts to weave from outside; Filling Bobbin or Quill Winding Machines; Vertical Spindle Spooling Machine for silk, fine cotton, wool and worsted; Variable Speed Bobbin Machines for large bobbins used in knitting mills; Dresser Spooling Machines; Reeling Machines.



Vertical Spindle Gear Driven Winder, as used by all manufacturers of heavy duck, jute, cotton, bagging and carpets.



High Speed Cross Quiller to wind from skeins, spools or mule cops on two quills or paper tubes. It is built to run from 1800 to 2400 revolutions.



Pressure Drum Spooling Machine. This machine is adapted for spooling any kind of yarn, whether from mule cops or skeins.

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

Crabbing Machine. *Bulletin 70*

The Hunter CRABBING MACHINE

A COMBINATION machine permitting the Crabbing of goods by the Intermittent or Continuous process.

Two machines in one.

Either process of Crabbing may be used to the exclusion of the other, or both systems may be applied to the same piece.

This machine developes the pattern.

It imparts luster and sets the weave.

It prevents wrinkling or cockling and gives softness yet firmness to the fabric.

It makes cloudy goods impossible, brightens colors and imparts an absolutely uniform finish that can be duplicated.

For Resist Dyes it is a wonder.

It produces no seconds but goods that sell.

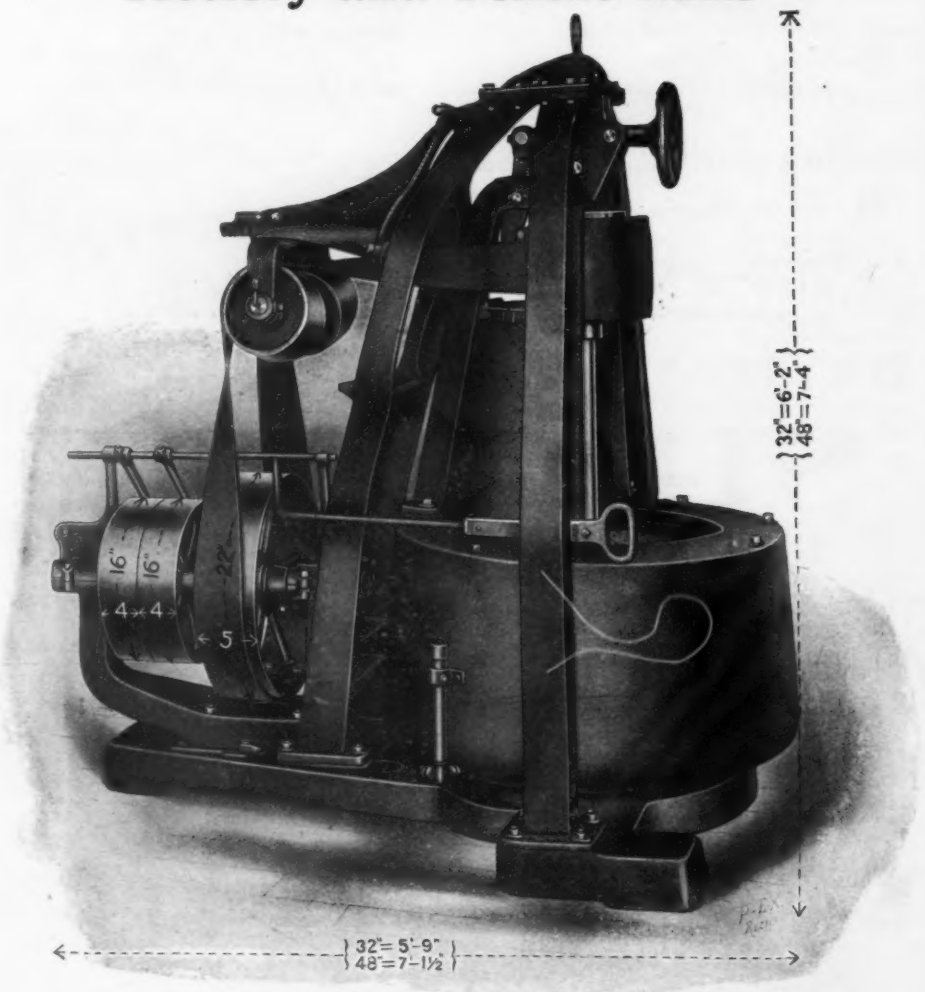
It is for progressive manufacturers who are only satisfied with the best.

Bulletin 70 fully describes it.

Open Driven Extractors

FOR

Hosiery and Textile Mills



The American Laundry Machinery Mfg Co

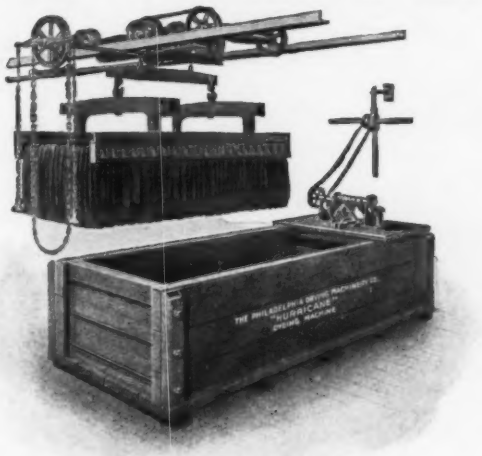
Western Division
78-80 Franklin St.
Chicago

Eastern Division
132-138 W. 27th St.
New York

Southern Division
Station H
Cincinnati

SAVE IN DYEING

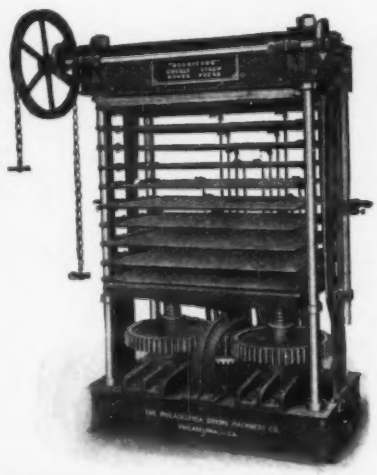
75% in Labor
50% " Steam
35% " Dyes



"HURRICANE"
Circulating Dyeing Machines
For Yarn, Hosiery, Etc.

Are in a Class by Themselves.

FOR HOSIERY,
SINGEING
WITHOUT BOARDS,— COSTS LESS THAN HALF



What you have paid heretofore.

THERE'S A REASON

FOR USING

"Hurricane" Automatic Singeing Machines

Power Screw and Hydraulic

PRESSES

For Hot or Cold Finishing, make higher prices possible on account of the better finish of the goods.

THE PHILADELPHIA DRYING MACHINERY COMPANY
"Hurricane" Dyeing, Drying and Finishing Machinery

Complete Equipments for Scouring, Bleaching, Carbonizing, Etc.

6721 Germantown Ave., Philadelphia, Pa.

130-$\frac{7}{12}$ feet, 50 inches wide; extra heavy three-ply leather belting.

89-$\frac{2}{12}$ feet, 50 inches wide; extra heavy three-ply leather belting.

68-$\frac{9}{12}$ feet, 50 inches wide; extra heavy three-ply leather belting.

60-$\frac{11}{12}$ feet, 50 inches wide; extra heavy three-ply leather belting.

52-$\frac{4}{12}$ feet, 50 inches wide; extra heavy three-ply leather belting.

Five 3 ply Leather Belts for The American Sugar Refining Co. New Orleans La.

A Corporation like the American Sugar Refining Company of New Orleans, La., consider quality first, and buy their belting from the most reliable house, where a guarantee means something tangible.

If any part or the whole of this shipment does not come up to the high standard of Schieren Belting it could be returned without cost to the buyer.

This broad guarantee applies to all Schieren Belting no matter how much or liitle you buy.

Send for estimates and printed matter with a copy of our guarantee.

We make a specialty of Duxbak Waterproof Leather Belting. Guaranteed Waterproof and Steamproof and sent on trial.

Chas. A. Schieren Company
ESTABLISHED 1868
TANNERS
BELT MANUFACTURERS

NEW YORK, 30-38 Ferry St.
CHICAGO, 84-86-88 Franklin St.
BOSTON, 186-188 Lincoln St.
PHILADELPHIA, 226 North 3d St.
PITTSBURG, 240 Third Avenue
DENVER, 1622 Wazee St.
BROOKLYN, N. Y., cor. 13th St. and 3d Ave.
HAMBURG, GERMANY, Auf dem Sande 1.
OAK LEATHER TANNERIES, Bristol, Tenn.

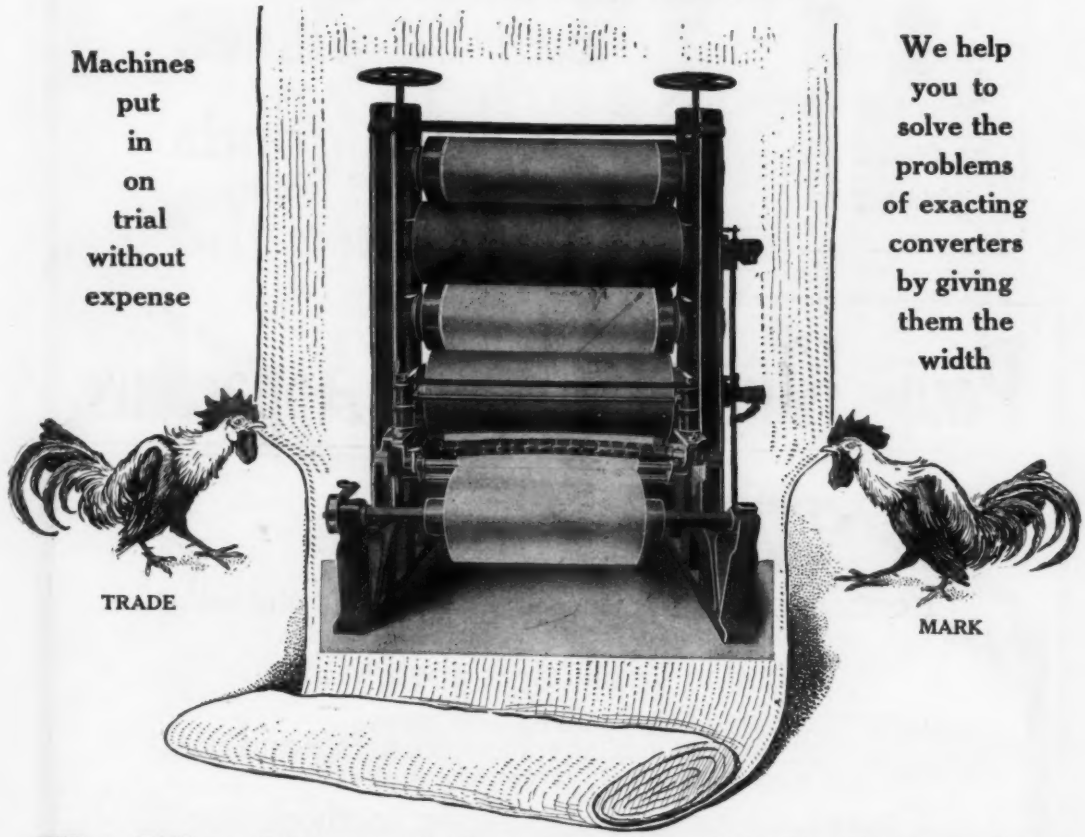
Thos. Leyland & Company

60 India Street, Boston, Mass.

Gums, Dextrines, Corn, Wheat & Potato Starches

Soluble Starches, Softeners, Etc.

Machines put in on trial without expense

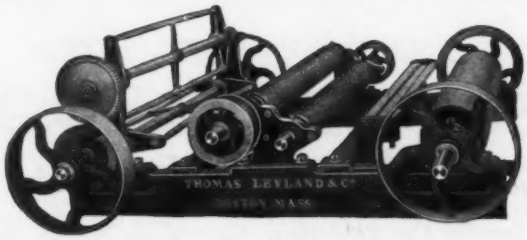


We help you to solve the problems of exacting converters by giving them the width

TRADE MARK

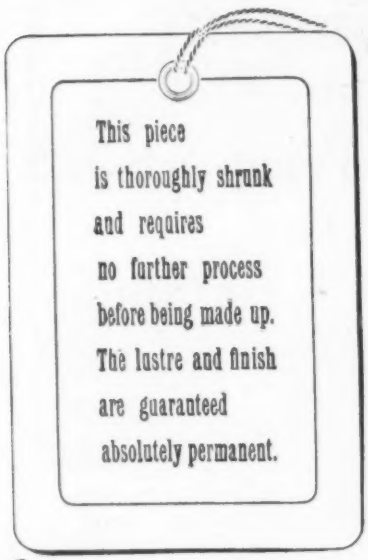
The Wm. Mycock Regulating Cloth Expander

Sole Manufacturers under The Mycock Patents



We are becoming experts in this line. Prove us

Improved Free Running, Solid Brass Scroll Cloth Scutchers



This Ticket

can be placed on your goods if you use the

Paul Klug Decating Apparatus

By the use of which

Permanency of lustre and finish are obtained.

London shrinking is abolished.

Cockling difficulties are overcome and

Former steaming and sponging methods are done away with.

Let us explain the process to you.

L. H. A. SCHWARTZ & CO., 53 STATE ST. BOSTON, MASS.

Importers of Special Textile Machinery

We also handle the Paul Klug Gumming, Suction and Wet Decating Machines.

American Textile Specialty Machinery Co.

670 Eddy St., Providence, R. I.

MANUFACTURERS OF

SHUTTLES AND SHUTTLE IRONS

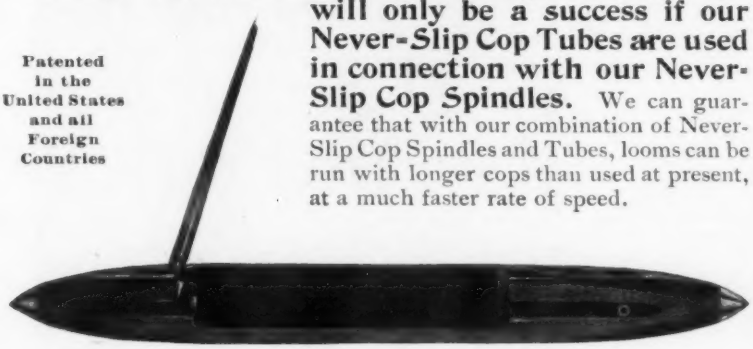
FOR ALL TEXTILE PURPOSES

Never-Slip Cop Tube

Patent applied for.

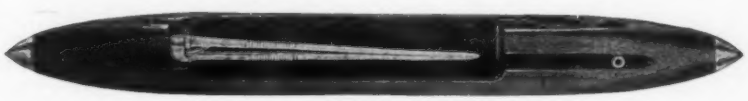
Filling-Waste is reduced to nothing and long Cops will only be a success if our Never-Slip Cop Tubes are used in connection with our Never-Slip Cop Spindles. We can guarantee that with our combination of Never-Slip Cop Spindles and Tubes, looms can be run with longer cops than used at present, at a much faster rate of speed.

Patented in the United States and all Foreign Countries



Shuttle with Spindle Raised

U. S. Patents: 778851, Jan. 3, 1905; 790611, May 23, 1905; other patents pending



Shuttle with Spindle Lowered

U. S. Patents; 778851, Jan. 3, 1905; 790611, May 23, 1905; other patents pending

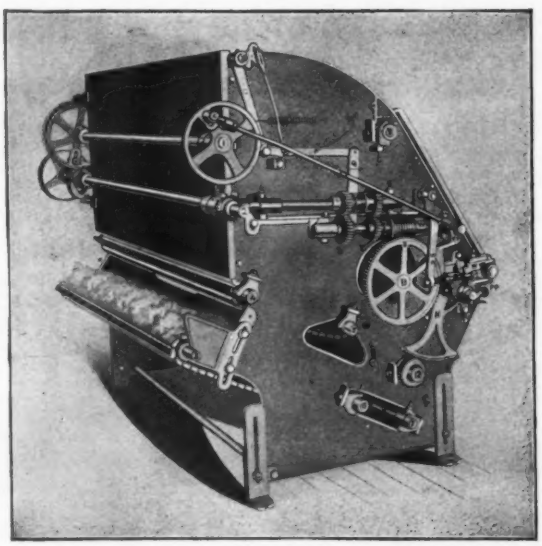
We also manufacture a complete line of

Paper Cop Tubes, Cones and Shells

Send your samples and we will quote prices on any lot desired

New York Office, 363-373 Rider Ave.

THE FISHER PATENT CARD FEED



Write Us For List of Mills Where Machines Are Used.

Woonsocket Machine and Press Company

WOONSOCKET, R. I.

STARCH.

Increased efficiency in

WARP SIZING

with LESS COST by using

Adhesive Value:

One pound of "C. P. SPECIAL" contains a sizing value of from one to one and a half pounds of any other starch.

"C. P. SPECIAL" requires no heavying or stocking up after standing.

Sizing Qualities:

"C. P. SPECIAL" dries without sticking on slasher cylinders.

"C. P. SPECIAL" penetrates yarn thoroughly.

"C. P. SPECIAL" increases tensile strength of yarn from 5–10 percent.

"C. P. SPECIAL" boils quickly and produces good, smooth size.

Weaving:

Warps sized with "C. P. SPECIAL" draw in and weave to entire satisfaction.

"C. P. SPECIAL" will not dust off under your looms.

Demonstration:

We are ready to demonstrate in your mill—free of cost—just what "C. P. SPECIAL" will do.

100 lbs. "C. P. SPECIAL" will be sent on request to any responsible Cotton Manufacturer for demonstration purposes.

Corn Products Refining Co., New York, N. Y.

THE TURBO-HUMIDIFIER

THIS BOOK tells all we knew about it at the time it was published.

The salesmen can tell some other things they have dug up since.

A customer has users' experience.

Shall we send the book, the salesman, or a list of customers?

THE G. M. PARKS COMPANY

SOLE AGENT

FITCHBURG, MASS.

Southern Office: 1 Trust Building, Charlotte, N. C.

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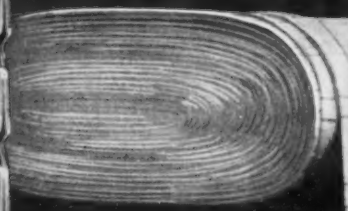
COMMUNITY "FRICTION CHAIN" FOR LOOMS



PERFECTS THE WEAVE

Insures even and uniform friction.

Not affected by dampness or dryness.

Will not stretch. Adapted to heavy or light weaving.

Will outwear cord, band or rope many times over.

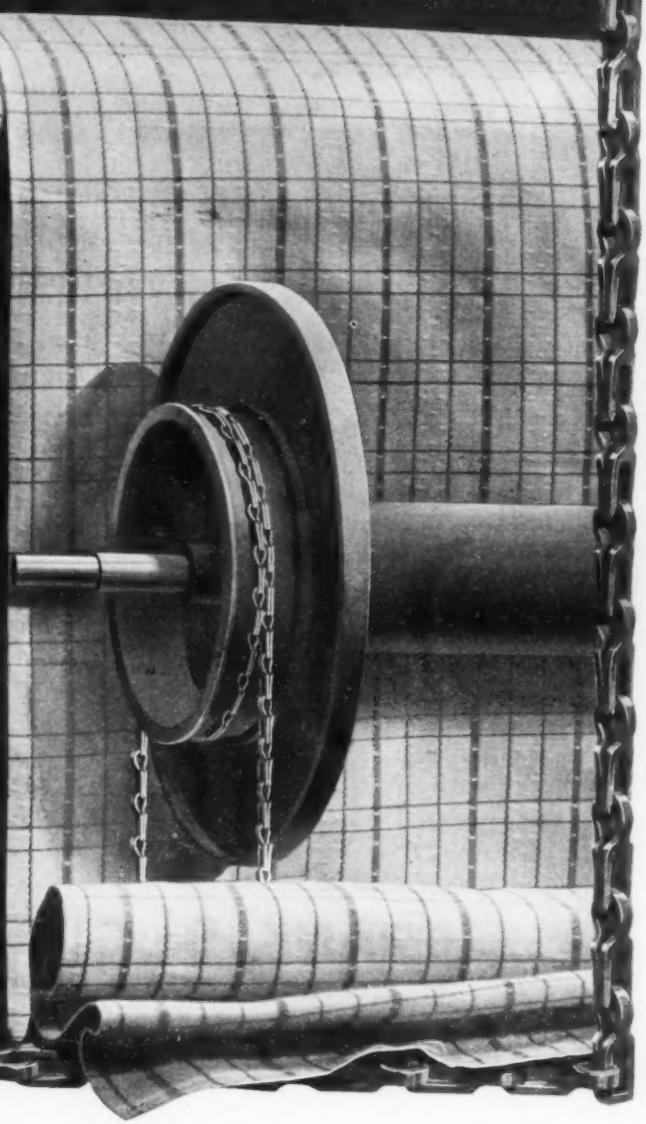
Saves labor.

Easily adjusted.

Carried by all the leading supply houses.

We earnestly solicit your orders.

ONEIDA COMMUNITY, Ltd.
ONEIDA, N.Y.



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HEYWOOD BROTHERS & WAKEFIELD CO.,
GARDNER, MASS.
LEE & HEWETT, ENGINEERS

consisting of three manufacturing buildings and one office building, to the entire satisfaction of both the owners and the engineers. The buildings comprising this group embody all of the standard fireproof construction methods, such as brick curtain walls, reinforced concrete floors, metal windows, wire glass, etc., and as completed, represent an excellent example of the latest and most approved type of factory construction.

On account of the restricted area within which building operations were carried on in this instance, due to a number of old buildings in which manufacturing had to be continued until the new buildings were ready for occupancy, our work was rendered unusually difficult. The satisfaction of both owners and engineers is the best indication of the efficient manner in which our work was done.

We solicit contracts of magnitude in which *time* is of the essence of the contract.

FRANK B. GILBRETH

GENERAL CONTRACTOR FOR
ARCHITECTURAL AND ENGINEERING CONSTRUCTION
GENERAL OFFICES, 34 WEST 26TH STREET, NEW YORK

FACTORY FIRES COST MONEY

not only in the loss of the building and the stock, both of which can be insured, but by

From "Reinforced Concrete in Factory Construction."

A LOSS OF TRADE

which cannot be covered by fire insurance. *100% of the disastrous fires* totally destroying buildings and stock which occur yearly *could be averted* by a CONCRETE BUILDING built with "ATLAS" Portland Cement.

Every factory owner is guilty of Gross Negligence unless he gives this type of construction careful consideration when planning a new building.

Our book—for the Manufacturer and Merchant—"Reinforced Concrete in Factory Construction," contains numerous illustrations and descriptions of Concrete Factories. Send for it at once—free upon request—postage **10** cents.

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NONE JUST AS GOOD.

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ARTIFICIALLY SOFTENED WATER

Are used Daily in the Textile Trades, for

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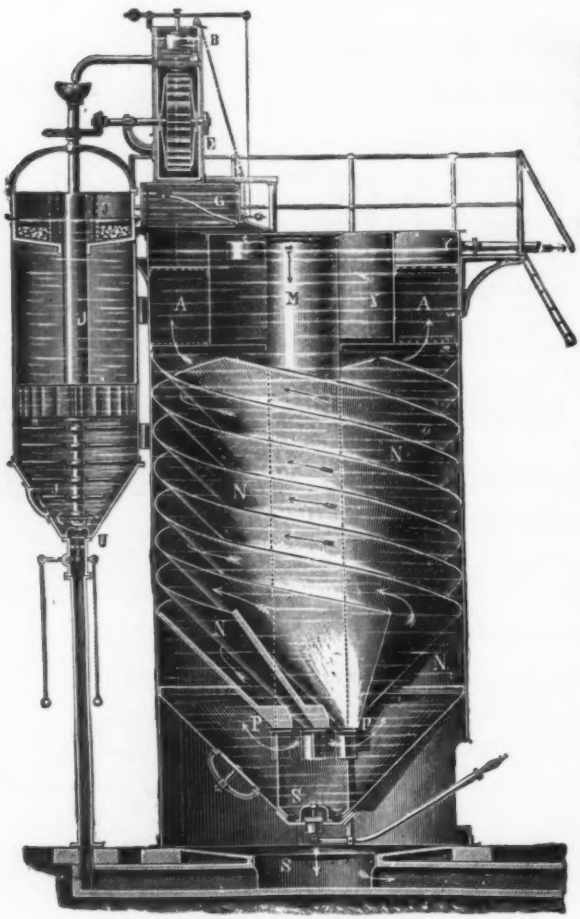

Automatic - - - Continuous
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OUR customers, therefore, are on an equal footing with those manufacturers who have naturally soft water, and who accordingly are able to produce superior grades of goods, and at less cost, than any user of hard water possibly can.

With the Dodge Automatic Eureka Water Softener and Purifier You are insured against:

1. Lime lakes in dyeing.
2. Uneven shading.
3. Unsatisfactory colors or shading, due to suspended or dissolved impurities (including iron compounds) in the water.
4. Soap and alkali waste.
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Used also for Boiler Feeding. This Same Non-Incrusting Treated Water enables you to:

1. Prevent all scale in boilers, heaters, pipes, etc.
2. Cut out expense for compounds and mechanical cleaners.
3. Eliminate cleaning and repair expense due to scale.
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The Eureka System Pays Back its Cost Many Times Over in a Few Years.

It will provide uniform, soft water at all times, regardless of rains and freshets. Settle your vexatious water supply problem now and forever, and stop needless waste. Don't forget to ask for our Bulletin "R" when writing.

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"BUILDERS OF THE BEST"

Labor Saving Machinery for Dyeing, Singeing and Finishing

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IN SULPHUR, ANILINE, DEVELOPED BLACKS AND COLORS
POWER SCREW PRESSES and MERCERIZING MACHINES

SAVE LABOR and **DYE STUFF** and do **BETTER WORK** in your dye house by using

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Full Particulars on Application

CORAL AND CUMBERLAND STREETS

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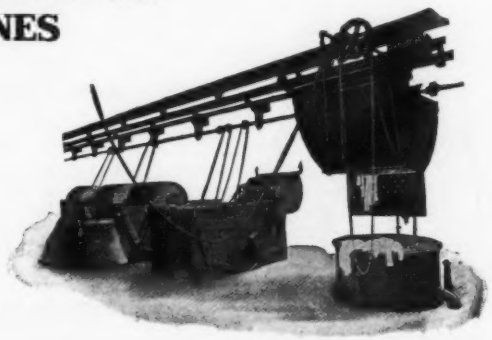

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Piece Dyeing Machines, Special Machinery,
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Spindles and Flyers, for Cotton, Wool, Silk, Flax, etc.

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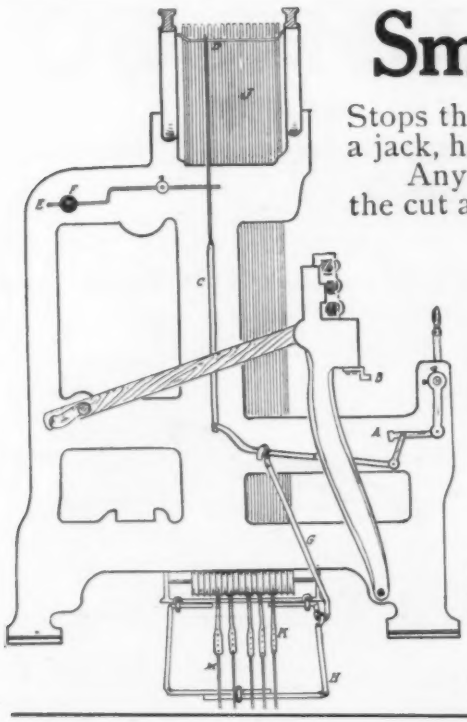

Smash Protector

Stops the looms instantly and automatically if a jack, harness wire, or strap breaks.

Any practical man can see at a glance from the cut and description its many advantages.

IT WORKS LIKE THIS

When a harness jack drops out of place it strikes the wire D, pushing down the rod, C, which raises, A, up in time to strike B, as the lathe comes forward, knocking off the lever. E is a stopping lever which enables the operator to stop the loom from the rear. F, is a weight which keeps the apparatus in position. When a harness strap, K, breaks, it lets the wire M down on the frame, H, which pulls down on arm, G, and raises A, which strikes B, and stops the loom.

At the low price of $5 00 per loom it certainly will pay for itself in a very short time.

Manufactured by

Bamford & Smith Co., Providence, R. I.

C. G. SARGENT'S SONS

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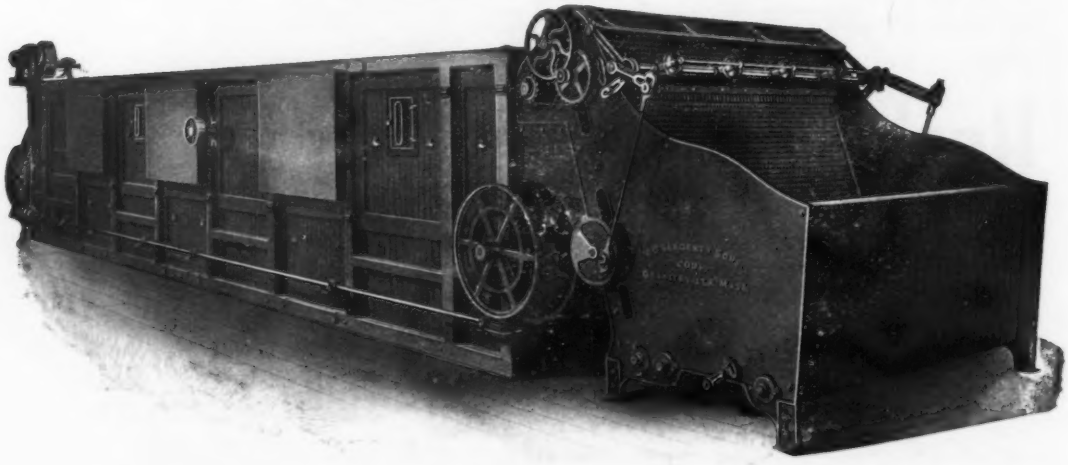
GRANITEVILLE, MASS.



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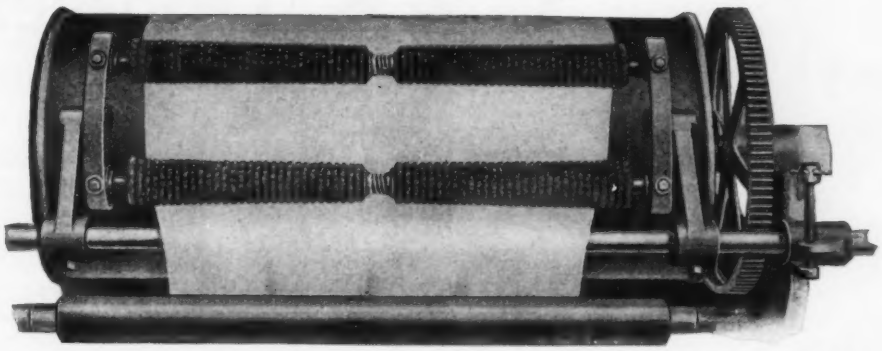
Stock Dryers, Wool Washers, Wool Dusters, Carbonizing Plants, Burr Pickers, Etc.

New Bristle Cloth Stretcher

(Patented)



THE NEW PRINCIPLE FOR STRETCHING CLOTH

from the centre toward the selvedge. Each bristle catches a different thread of the fabric at the same time. A manufacturer whose name is famous the world over recently said of this stretcher: "It is the greatest invention in the line of finishing machinery since I have been in the business." ¶ GETS THE FULL WIDTH OF THE GOODS; stretches all classes of fabrics with equal efficiency. No dirt, grease, oil, or complications.

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Reclaimed Olive Oil

A Pure Distilled Recovered Oil

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For Woolen Mills

"THE NATURAL WOOL OILS"

Olive Soft Soap for Scouring **Liquid Soluble Soap**

Samples Furnished and Prices Quoted on Request.

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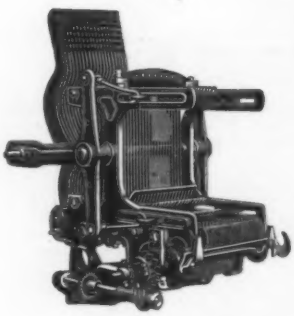

C. & K. Dobbies

are best adapted to every requirement — always the leaders in efficiency and economy.

We apply them to any and all makes of looms.

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MAKERS OF MACHINERY FOR

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Flax, Hemp, Tow and Jute

Special Machinery for the Manufacture of Twines, Rope Yarns and Binder Twine

Good's Combined Hackling and Spreading Machine.

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Haskell-Dawes Tubing Twisters.

Brownell's Patent Twisting and Laying Machines for Twine.

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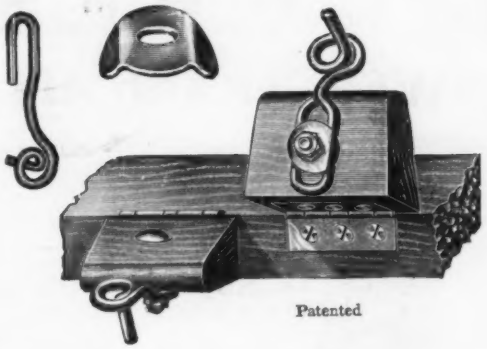
The accompanying illustration shows the **Palmer** adjustable thread guide for spinning and twisting. This guide is **Adjustable** in all directions and can be rigidly and permanently fixed. **Thread** boards and rails of metal which are expensive are not necessary with this **Guide**



Patented

SEND two clappers for free samples for circular.

The Palmer Revolving Guide for Wet and Dry Twisting

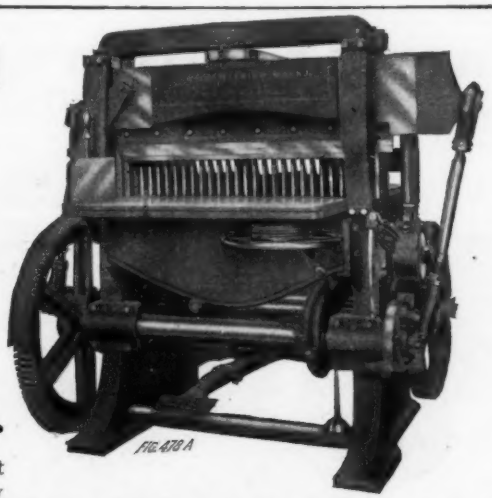
Patented

Lays the fiber closer
Makes a smoother twist
Saves power
Will outwear many wire guides

THE I. E. PALMER CO., Middletown, Conn.

Pinking Cloth and Cutting Samples on Oswego Cutting Machines

is easy, quick, economical and correct.



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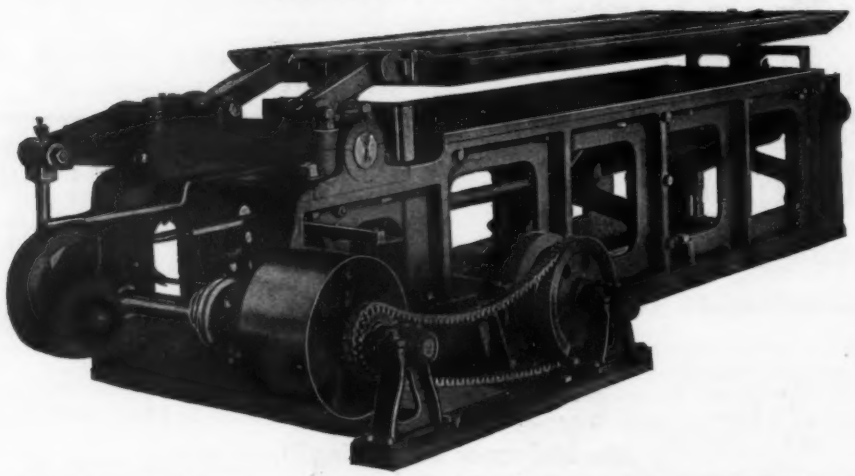

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Chilled and Soft Iron Rolls. Heavy Transmission Machinery.
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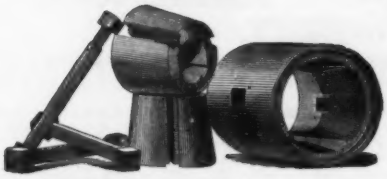
Heavy Castings, in Gray Iron or Semi Steel.



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DOUBLE CONE VISE COUPLING

has a way of holding shafts together, that no other COUPLING can equal.

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and all most approved appliances for the Transmission of Power.

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WROUGHT STEEL

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Is a parting PULLEY and can be applied without stripping the shaft.
It is Light, STRONG, and lasts a lifetime.
It clamps to the shaft perfectly—keys and set-screws superfluous.
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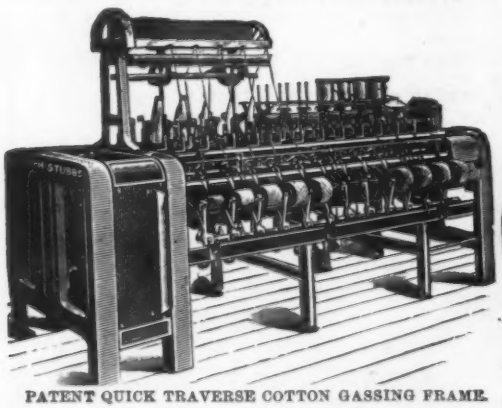
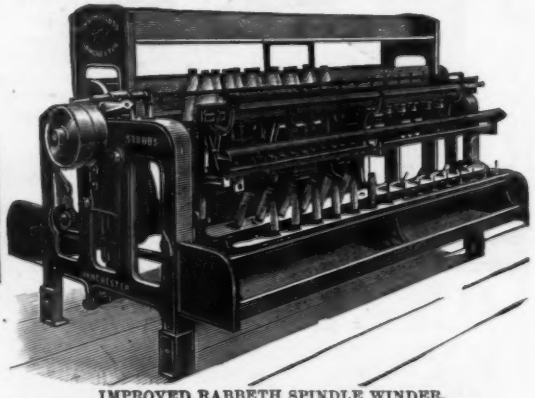
SPECIAL MACHINERY

For Winding, Gassing, Reeling, Preparing, Polishing and Bundling Yarns.



PATENT QUICK TRAVERSE COTTON GASSING FRAME.



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With Patent Tapering Motion, for Single Flanged Bobbins.

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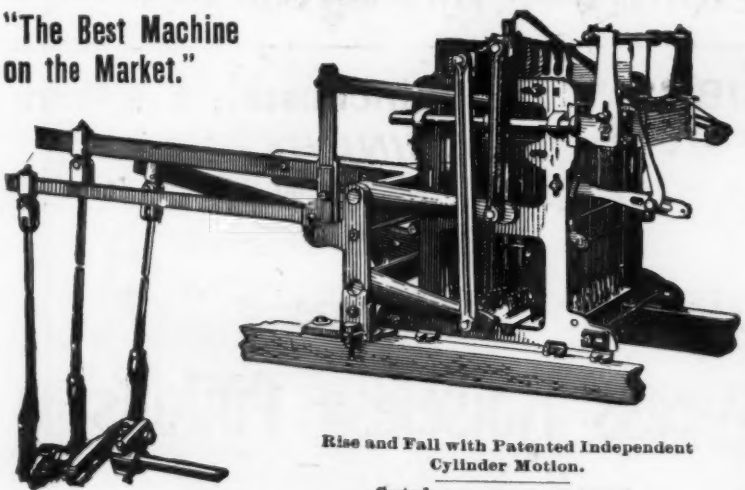

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Catalogue upon request.

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Original Fine Index Machines

Single Lift, Double Lift, Double Cylinder, Rise and Fall, Crossborder.

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Representative
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Tacking, Sewing, Squeezing Machines

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For Motor Drives

New Process Noiseless Pinions

are the thing. Try them anywhere about your plant where you now have a noisy gear drive and you will become enthuiastic about their good qualities. Simply replace your metal pinion with a ***New Process Pinion*** running with your old gearwheel and note results.

Descriptive catalogue for the asking.

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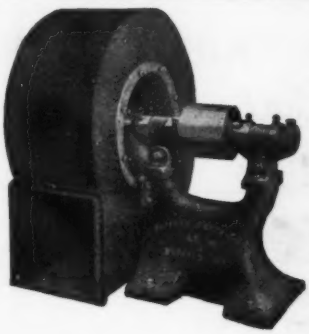

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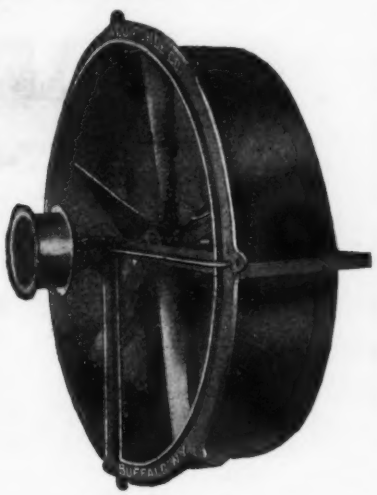
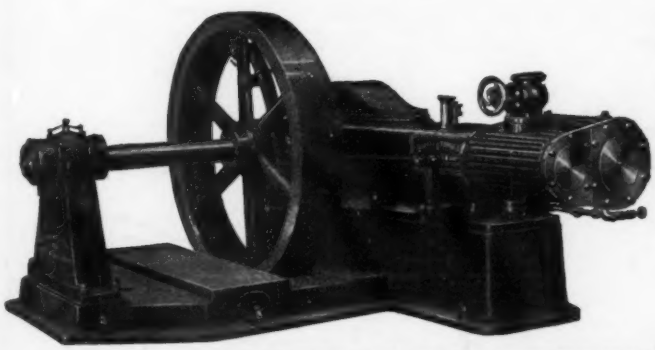
Disk Wheels and Propeller Fans

A simple and effective way of ventilating, cooling and removing steam and vapors—Pulley and Electric drive.





Buffalo Engines
Horizontal, Vertical

SIMPLE, COMPOUND, highest steam economy, simplicity of design, copious lubrication, smooth, cool running at sustained high speeds.

Send for Circulars

BUFFALO, NEW YORK

Southern Office, CHARLOTTE, N. C. 58E

A Worcester Warp Compressor

Attached to any make of beaming or slasher

Pays For Itself in 100 Working Days

on woolens, worsteds or cottons.

WHY?

Because

It gains from 30% to 75% more yarn per loom beam. Saves from 30% to 75% of waste and drawing-in 60% less tension retains the ELASTICITY in the yarn.

Weaves Better With Greater Production

This Warp Compressor simply rolls each layer of yarn as it is wound on the beam, and as very little tension is necessary, produces a round, hard, true warp, straight from end to end; which takes the picks easier, with less weight on the friction straps; consequently,

Patterns show up cleaner and sharper.
Cloth fulls faster, feels softer and firmer.
Needs less sewing and mending.
Obliterates "section streaks" and "pin marks."

No "Seconds"

Thousands Running in Hundreds of Mills

On all kinds of yarn **On all widths of warps**
On all lengths of beams **In all sizes of mills**

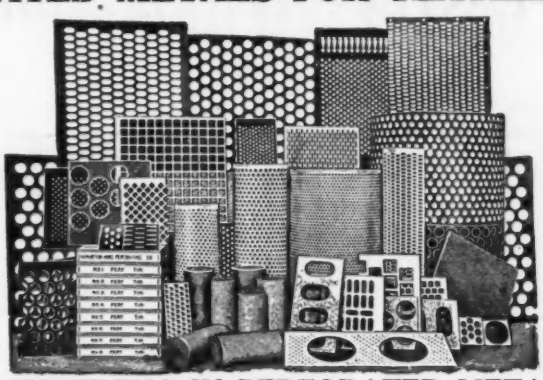
Can be attached to any make of beamer

Without Change in Methods of Machinery

Warp Compressing Machine Co., Exchange St, Worcester, Mass.

PERFORATED METALS FOR TEXTILE MILLS

Used in
Dye Tubs,
Rinse Boxes,
Strainer Bottoms,
Scouring Tanks,
Steam Boxes,
Wool Scouring
Plates.



Used in
Burr Pickers,
Grabbing Machines,
Dyeing Machines,
Extractor Baskets,
Steam Finishing
Machines.

EVERYTHING IN PERFORATED METAL

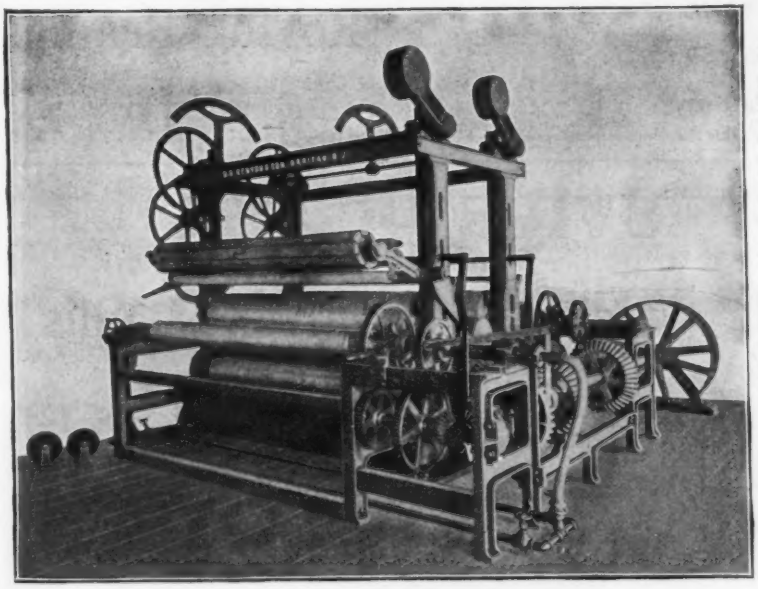
Perforated Brass and Copper for Wool Washing Machinery.
Perforated Steel (black or galvanized) for Dusters, Reels, Drying Floors,
False Bottoms, Drainers, etc., etc.
ALL SIZES OF STEEL SURFACING.

It has been our business for many years to meet every need in this line and we have both the experience and facilities to do it. As most of this work is made to order send complete specifications.

THE HARRINGTON & KING PERFORATING CO.,
230 North Union Street,
CHICAGO

New York Office, 114 Liberty Street.

CRABBING MACHINES EITHER SINGLE, DOUBLE or TRIPLE



Patented February 26, 1895

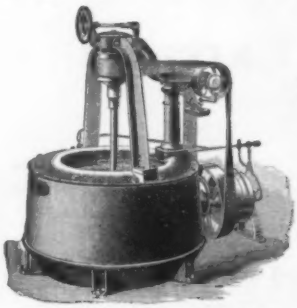
Tentering and Drying Machines on Pipe System. Special Dryers for Heavy Felt Goods. Hot Air Drying and Tentering Machines.

Fulling Mills, Washers, Chinchilla and Whitney Machines, Whipping Machines, Cone Willows, Marsden & Blamire Lap Feed, Dyeing Machines for Piece Goods, Soaping Machines, Wringing Machines, Jigs (Double or Single,) Dewing Machines, etc. Crabbing Machines for worsted, Made either single, double or triple.

Manufactured by

D.R. KENYON & SON
RARITAN, N. J.
Successors to KENYON BROS.
Long Distance Telephone
Somerville, 21

Hydro-Extractors, Exhaust Fans, Dye Tanks and Tubs

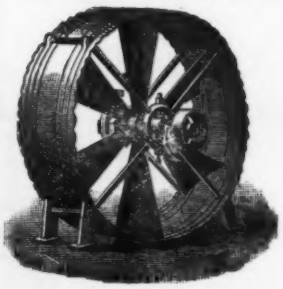


Adjusts itself to an uneven load, runs without vibration
Unusual capacity for high-class work

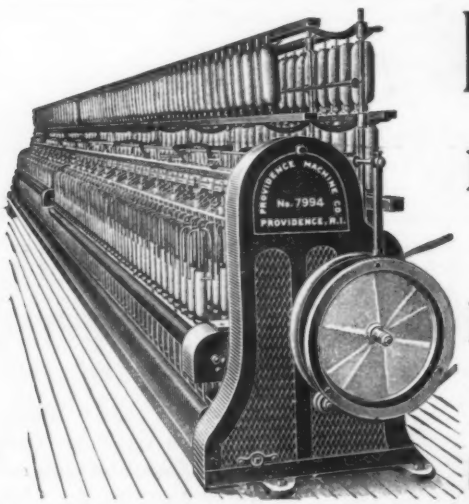
Bridger Hydraulic Cutting Press

Send for Catalog

Tolhurst Machine Works
Fulton St., and 6th Ave., Troy, N. Y.



Moves more air than any other fan made. Very efficient under widely varying conditions. Noiseless and does not obstruct the light



Providence Machine Co.

Manufacturers of

Improved Cotton Roving Frames

Improved Worsted Roving Frames

564 Eddy St., - - PROVIDENCE, R. I.

"ANTI-PLUVIUS"

(Trade Mark)

Puttyless Skylights

FOR

SAWTOOTH CONSTRUCTION

100,000 square feet now on order.

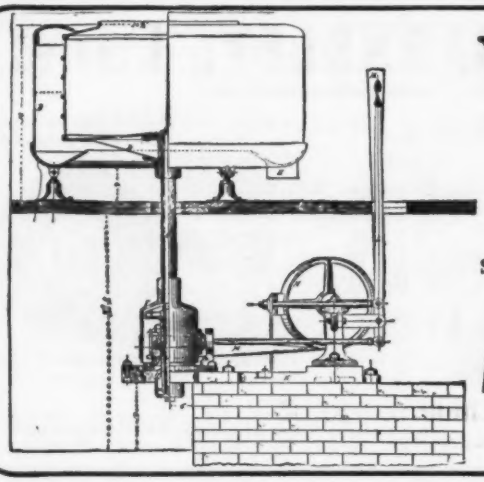
Do you know its merits? Its economical features? Its efficiency?

Let us send the details and a section

BAR DOES NOT SWEAT
NO DRIPPAGE

THE G. DROUVE COMPANY, Bridgeport, Conn.

CHICAGO OFFICE: 40 Dearborn Street



Weston Hydro Extractors.

Special Machines for Acid Work.

SHAFTING, PULLEYS,
FRICTION CLUTCHES, Etc.

American Tool and Machine Co.

Incorporated 1864. Founded 1845.

109 Beach Street, Boston, Mass.

General Electric Company

Tungsten Lamps

If you want to get more light without increasing your light bill, or if you want to relieve your overloaded lighting plant, GE Tungstens will help you. Furthermore the quality of the light given by GE Tungstens is almost equal to daylight. These are good points to remember when you are considering the lighting question.

Mill Power Office, 84 State St., Boston, Mass. **Principal Office: Schenectady, N. Y.** Sales Offices in all large cities. 1897

Electrical Installations

In Textile Mills is Our Specialty

15 Years Experience Highest References

MODERN LIGHTING SYSTEMS
EFFICIENT POWER PLANTS
RECONSTRUCTION OF OLD PLANTS

Watson-Flagg Engineering Company

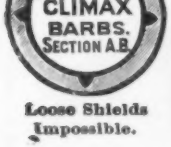
Contracting Engineers

Paterson, N. J. **New York, N. Y.**

WILSON & CO., BARNSLEY, Limited

BARNSLEY, ENGLAND.

Absolutely secure combination of Shield and Bobbin guaranteed.



Loose Shields Impossible.

Specialties: PATENT "LOCKFAST" and "CLIMAX" Shields. ENAMELLED CONDITIONING BOBBINS, Impervious to Steam, Moisture or Oil.

TRADE MARK.

GOLD MEDAL St. Louis, 1904. DIPLOMA d'Honneur Liege, 1905. Highest Awards for Bobbins.

Added Strength and Absolute Security.

Samples and Prices on Application.

SPEED & STEPHENSON, Agents for U. S., 170 Summer St., Boston, Mass.

K-A Electrical Warp Stop

MEETS EVERY CONDITION

EQUIPPED WITH OPEN DROP WIRES OR CLOSED·
OPERATED WITH LEASE OR WITHOUT.
POSSESSES LARGE RANGE OF ADJUSTMENT.
OCCUPIES SMALL EXTENT OF SPACE·
STANDS FOR CERTAINTY—SAFETY—SAVING.
AN ATTRACTIVE PROPOSITION IN PRICE AND RESULTS.

K-A Dept. Mossberg Wrench Company
Central Falls, R. I.

JACKSON Belt-Lacer

For Large or Small Belts

The perfect lacing is that made by the

Jackson Belt Lacer

IT'S STRONG: withstands 1900 lbs strain per inch of lacing.
IT'S DURABLE: the steel wire lacing and rawhide pin will outlast any belt.
CONVENIENT: connected or disconnected in a second by inserting or withdrawing the pin from between the intermeshing coils of steel wire lacing. Above all
IT'S ECONOMICAL: with the JACKSON BELT LACER one man can lace a 5-inch belt in THREE MINUTES, the cost for material being LESS THAN ONE CENT.

Adopted by the U. S. Government and the leading manufacturers of the country.

YOUR shop needs it as much as theirs.

Write for booklet.

Birdsboro Steel Foundry & Machine Company, Birdsboro, Pa.

Will improve your product and save money.

Saponified Oil for Wool

(Breton Brand)

BRETON OIL FOR WOOL TRADE-MARK

Yields a perfect emulsion with the use of water only. Easiest to apply. Clears itself in scouring and fulling far easier than other oils.

Trial barrel sent subject to test and approval.

BORNE, SCRYMSER COMPANY. 80 South Street, New York
Boston Fall River Philadelphia Works, Claremont, N. J.

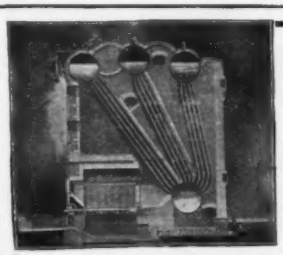
WILLIAM BODDEN & SON, Limited

The "BODDEN" Flyer

For QUALITY OF FINISH
For QUANTITY of PRODUCTION
HAS STOOD THE TEST OF YEARS

Sole Agents for U. S. A.

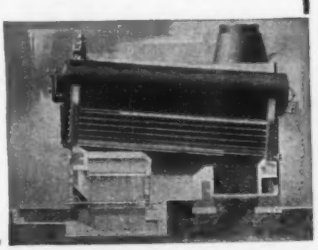
Thomas Mayor & Son, Olney Street, **Providence, R. I.**



The Murphy Automatic Smokeless Furnace

Burns Slack with Great Economy

The Murphy can be installed under any type of fire-tube or water-tube boiler and to units of any size.



SETTING UNDER TWO TYPES OF BOILERS SHOWN HEREWITH

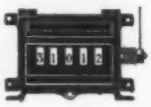
MURPHY IRON WORKS

DETROIT, MICH.

3 Necessities

FOR EVERY

Textile Manufacturer

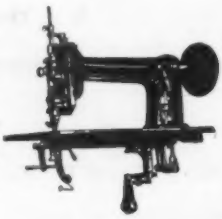


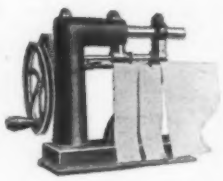
D & H 4207

Counter for registering picks, or production, yards or pieces.

L & E No. 1--1000

Numbering Machine for numbering and marking piece goods for identification.





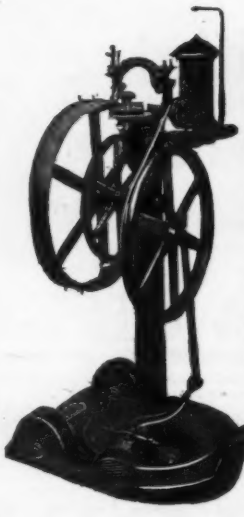
D & H No. 9

Sample Cutting Machine for pinking samples. The modern time and money saving way.

The Durbrow & Hearne Mfg Co.

12 Wooster St., NEW YORK.

DINSMORE



Mill Sewing Machines

No. 9.—Portable Foot-Power Rotary Sewing Machine

It is especially adapted for use in Cotton and Woolen Mills, Bleacheries, Print Works at the Printing Machines, in Dye Works, Cloth Rooms, at the Fulling Mill, Shears, Calendars, Gigs, Drying Machines, etc., or any of the different finishing processes in textile mills.

Manufactured by the

DINSMORE MANUFACTURING CO.,

Salem, Mass., U. S. A.

LANE CANVAS STEAMING OR AGEING BASKET

Made oblong, round or square to fit any size box. Especially desirable for this use because materials and construction are such as to **withstand moisture** and **heat.**

Sold direct or through principal Supply Houses.

See our Descriptive Catalog and Price List No. 37.

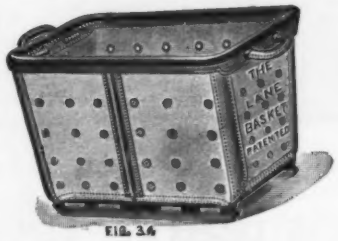
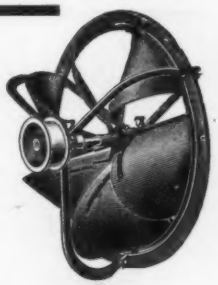


FIG. 34

MANUFACTURED ONLY BY

W. T. Lane & Brother, Office & Works **Poughkeepsie, N. Y.**

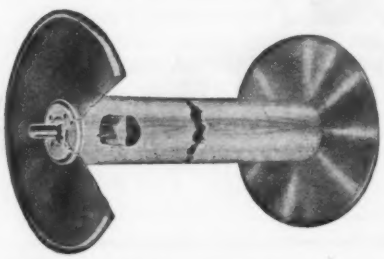
Get a Berry Wheel



Its cost is little, but effect is big. It clears out the fog, and keeps it out as nothing else will. Its use means improved working conditions, and better product.

The Berry System is Most Efficient and Economical for Drying.
Send for Circular T.

A. Hun Berry, 23 West First St., Boston



S. & D. Jack Spool

Pat. Aug. 6th, 1906

SWEET & DOYLE, Mill Furnishers
COHOES, N. Y.

The only spool made that the barrel itself acts as a support for the head. Note the recess in the head and the shoulder on the barrel. Our Claim:— A perfectly **SMOOTH HEAD.—NO SLIVERS.— A STIFF SPOOL.** — The **STRONGEST.** — The **LONGEST LIVED.—As CHEAP** as the **BEST.—** Practically **INDESTRUCTABLE.**

The "Simplex" Tables

Comprising

Comparative Yarn Tables, showing the equivalent sizes of different systems of Numbering Yarn and Different Standards.

Reed Tables

Weight of Yarn per Yard of Cloth Tables.

Knitting Machine Gauges. Yarn Sizes for Knitting Machines. Sizes for Underwear and Hosiery.

Breaking Strength Table of American Cotton Warp Yarns.

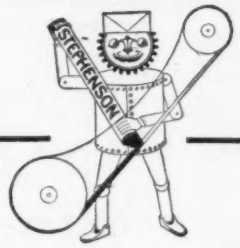
Compiled by the

TEXTILE WORLD RECORD

Price 50 Cents

LORD & NAGLE CO., Publishers
144 Congress Street, Boston, Mass.

"The After Effects Are Pleasant."



If Quality Counts

and ***Results*** are what you want, refuse to accept a cheap substitute, and insist that your Dealer gives you the kind of ***STEPHENSON Bar Belt Dressing*** that is made for your particular belts. Be sure the ***Man with the Cog-Wheel Face is on each Pound Stick.*** And don't confuse the Brands.

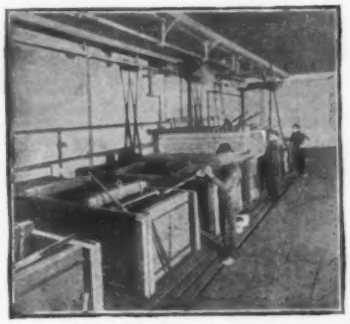
RED Label Brand for Leather Belts
GREEN Label Brand for Rubber Belts

Stephenson Mfg. Co., Albany, N.Y.

Write for sample of STEPHENSON Belt Cleaner.

Waters' Dyeing Machine

This cut shows a new and useful machine patented by D. F. Waters for the dyeing of any color on Worsted, Woolen, Cotton and Merino Yarns.



Being successfully operated by some of the largest manufacturers in the country.
The saving of labor will more than pay for a machine in a few months.
Capacity; 2,000 lbs. a day per man.
Machine can be seen in operation at any time at my plant where I have 13 in operation all the time.

D. F. WATERS,
53 and 55 Wister St., GERMANTOWN,
PHILADELPHIA, PA.

We have the Largest Exclusive Spool Manufacturing Plant in the World with a capacity of 10,000 High Grade Bushed Spools per day.

Our splendid facilities guarantee prompt and immediate deliveries. Our equipment, than which no better exists, guarantees the highest grade of all hard wood spools of the highest quality procurable at medium prices.

COTTON WARPER SPOOLS, COTTON TWISTER SPOOLS,
WORSTED ROVE SPOOLS, CARPET CREEL SPOOLS,
WORSTED REDUCER SPOOLS,
WOOL WARP SPOOLS.

We can give one week deliveries on any order of the above kinds of spools.

Lestershire Spool & Manufacturing Co.,
LESTERSHIRE, N. Y.

"NO WASTE"

Is the name of the only

Seamless Hard Fibre Roving Can

MADE FROM PURE CHEMICAL HARD FIBRE

NO SEAMS or RIVETS

Absolutely Smooth

No Waste or Broken Ends

Write for prices.

MANUFACTURED BY THE

Standard Fibre Co.
SOMERVILLE, MASS.

Philadelphia Textile School

TWENTY-FOURTH YEAR

Oldest in America
Most Complete in the World

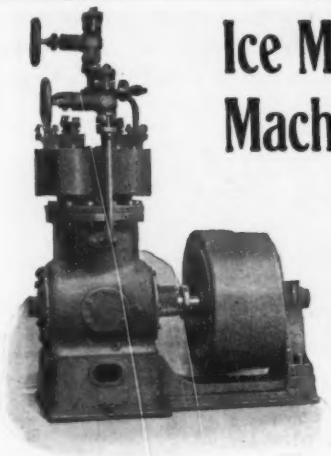
Endorsed by the Leading
Educators and Manufacturers

Cotton, Wool, Worsted and Silk
Instruction given in Designing, Weaving, Carding, Spinning, Chemistry, Dyeing and Finishing

Special Courses in
Textile Chemistry and Dyeing

For illustrated
Year Book and other information, address

E. W. France, Director,
Broad and Pine Streets - - - - - Philadelphia



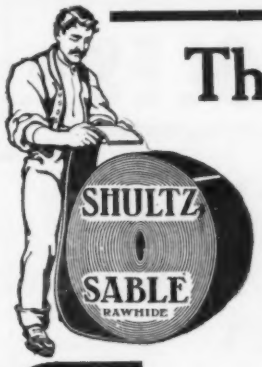
Ice Making Machines

of any capacity from 500 lbs. up, per day.

Send for catalogue.

Every Textile Mill can make money by installing its own Ice Making Plant: Ask Joseph Bancroft & Sons Co., Massachusetts Mills in Georgia, Erwin Cotton Mills, Duke, N. C., Belton Mills, Belton, S. C., or

REMINGTON MACHINE CO., WILMINGTON, DELAWARE.



The Belt You Want

Ask the man who has used a "SABLE" Belt and he will tell you that beside transmitting from 25 to 33 per cent more power than oak-tanned belts, a Shultz "SABLE" Rawhide Belt once put on the pulleys gives no trouble. It's soft, kid-like surface and pliability enable it to cling to the pulleys and transmit power without loss by slippage.

Send for a belt on trial.

Shultz Belting Company
St. Louis, Mo.
New York Boston Philadelphia

ESTABLISHED 1825

GEO. SIMS & SONS, Engineers

Sherwood Street, Nottingham, England

MAKERS OF IMPROVED

LACE DRESSING PLANT

Starch Rollers in Brass or Mahogany

LACE GASSING MACHINES, ETC.

Improved Fulling Mills

Send for Circulars **Washers and Dyeing Machines**

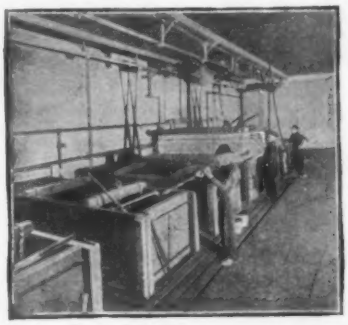
RODNEY HUNT MACHINE CO.
Orange, Mass.

Boston Branch Office:
70 Kilby Street

See Advt. of Water Turbines on page 254

Waters' Dyeing Machine

This cut shows a new and useful machine patented by D. F. Waters for the dyeing of any color on Worsted, Woolen, Cotton and Merino Yarns.



Being successfully operated by some of the largest manufacturers in the country.
The saving of labor will more than pay for a machine in a few months.
Capacity; 2,000 lbs. a day per man.
Machine can be seen in operation at any time at my plant where I have 13 in operation all the time.

D. F. WATERS,
53 and 55 Wister St., GERMANTOWN, PHILADELPHIA, PA.

We have the Largest Exclusive Spool Manufacturing Plant in the World with a capacity of 10,000 High Grade Bushed Spools per day.

Our splendid facilities guarantee prompt and immediate deliveries. Our equipment, than which no better exists, guarantees the highest grade of all hard wood spools of the highest quality procurable at medium prices.

COTTON WARPER SPOOLS, COTTON TWISTER SPOOLS,
WORSTED ROVE SPOOLS, CARPET CREEL SPOOLS,
WORSTED REDUCER SPOOLS,
WOOL WARP SPOOLS.

We can give one week deliveries on any order of the above kinds of spools.

Lestershire Spool & Manufacturing Co.,
LESTERSHIRE, N. Y.

"NO WASTE"

Is the name of the only

Seamless Hard Fibre Roving Can

MADE FROM PURE CHEMICAL HARD FIBRE

NO SEAMS or RIVETS

Absolutely Smooth

No Waste or Broken Ends

Write for prices.

MANUFACTURED BY THE

Standard Fibre Co.
SOMERVILLE, MASS.

Philadelphia Textile School

TWENTY-FOURTH YEAR

Oldest in America
Most Complete in the World

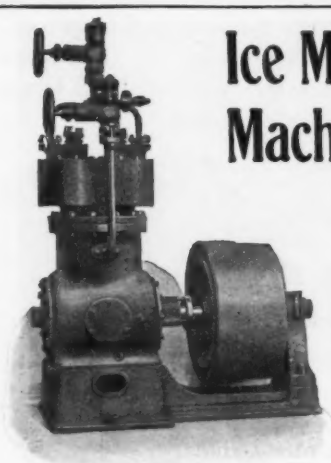
Endorsed by the Leading Educators and Manufacturers

Cotton, Wool, Worsted and Silk
Instruction given in Designing, Weaving, Carding, Spinning, Chemistry, Dyeing and Finishing

Special Courses in Textile Chemistry and Dyeing

For illustrated Year Book and other information, address

E. W. France, Director,
Broad and Pine Streets - - - - - Philadelphia



Ice Making Machines

of any capacity from 500 lbs. up, per day.

Send for catalogue.

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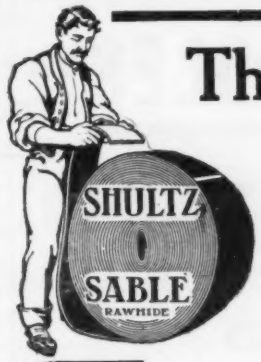

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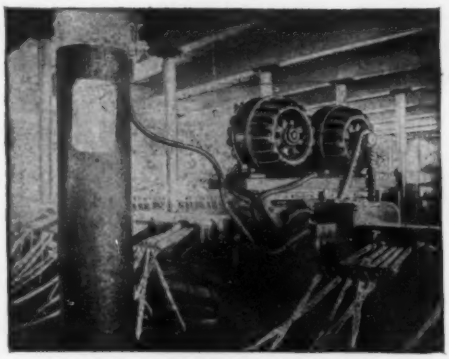

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The Results:

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will increase your carding and improve the quality of your yarn with less waste, greater strength and increased production over any other system.

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Combination Card Clothing

Which makes workers out of the strippers.

Thousands of these combination strippers running in the best mills in America.

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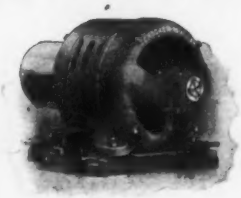

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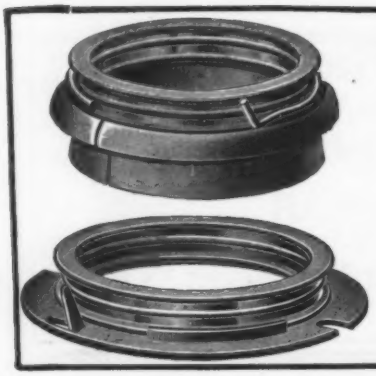

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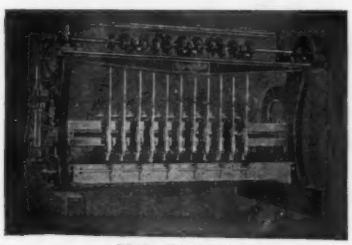

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BUILT WITH ANY REQUIRED NUMBER OF NEEDLES

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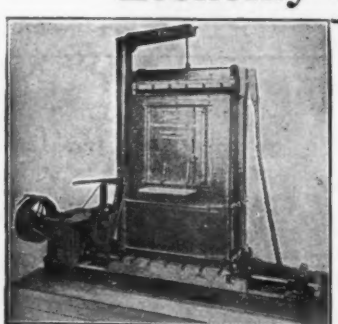

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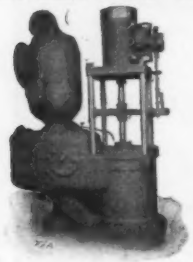

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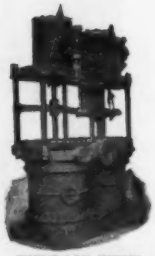

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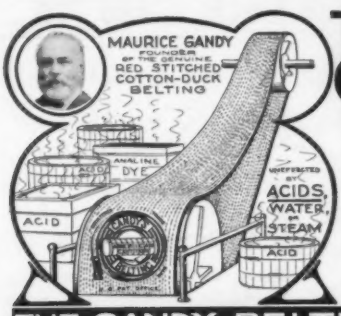

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It's only natural
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They realize that it runs straight and true, that it clings to the pulley like a chain on a sprocket, and that it outlasts all others several times over. Best of all, it costs but one-third as much as leather. Our free boooklet—"Experience with Gandy" tells more about this low-priced, long-lived belt. Send for it.
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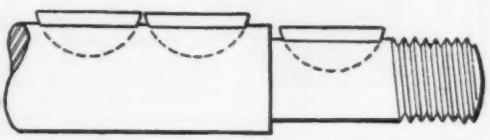

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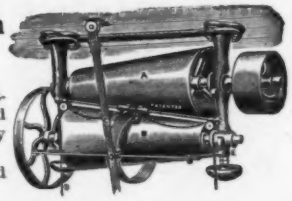

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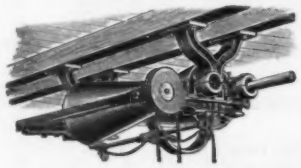

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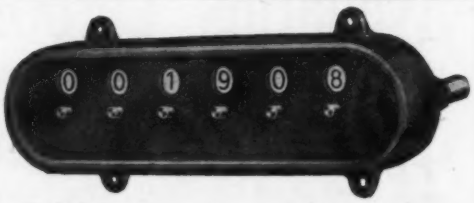

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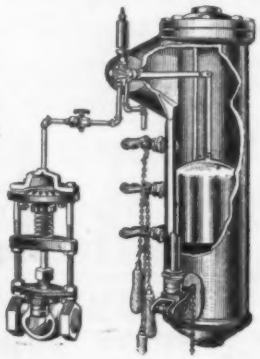

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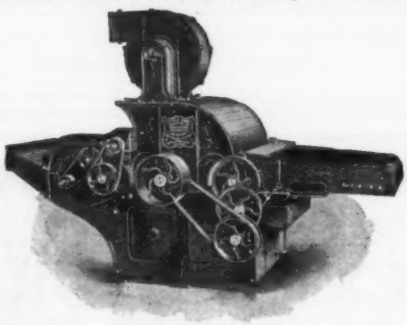

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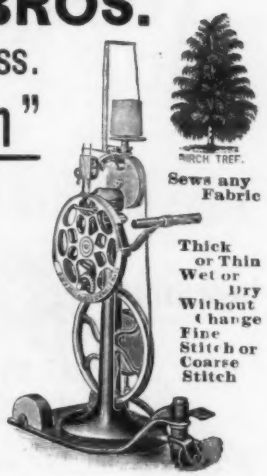

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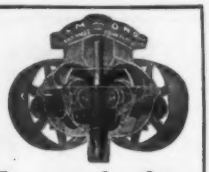

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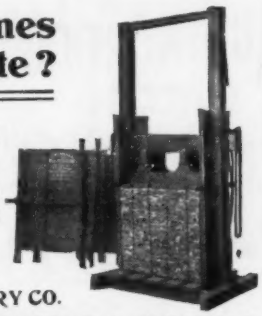

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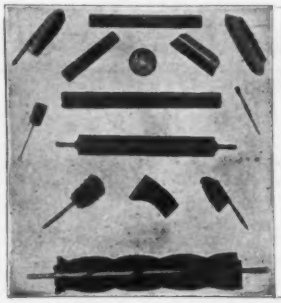

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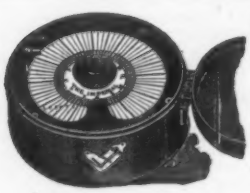

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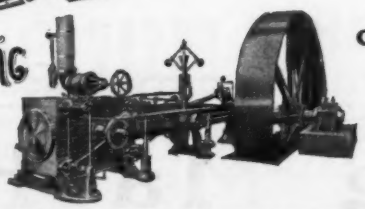

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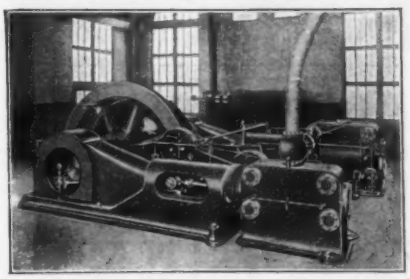

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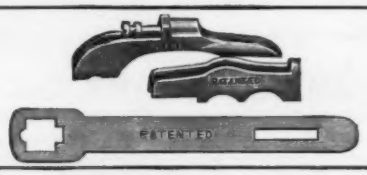

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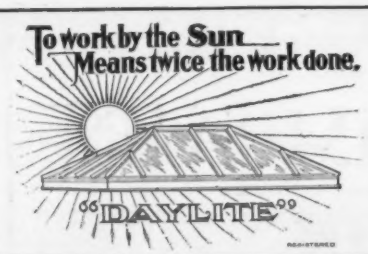

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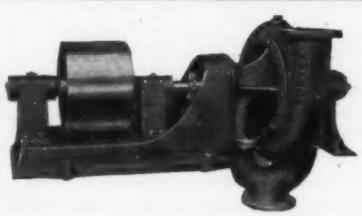

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Published on the 12th of each month by

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Copy for regular advertisements must reach publication office by the 25th of month preceding date of issue to insure proper attention. Transient ads., Wants, For Sale, etc., to go on Classified pages can be taken up to the 4th of the month of publication. We are always pleased to co-operate with advertisers in preparing attractive advertisements, and strongly recommend frequent change of copy, which increases the interest, and, therefore, the beneficial results of the advertising. We will cheerfully change copy as often as may be desired, providing it reaches us in time, but we cannot promise changes for next issue unless received as above stated.

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Official American Textile Directory

Published annually, in two editions. Office, Large Size, **$3.00. Travelers'**, Flexible, Smaller, **$2.00.**

A Complete Directory of Cotton, Woolen, Knitting, Silk, Flax and Jute Mills of the United States, Canada and Mexico, together with the Dyeing and Finishing Works, Bleacheries, Print Works and other Textile Establishments; about 7,000 in all. Full information is given about each mill in almost every instance, viz., the name of the company or firm, names of officers, agent, superintendent, the character of goods made, the machinery equipment, i. e., the number of sets of cards (or combs), the number of spindles, number of looms; whether the mill uses steam or water power, whether there is a dye house or not, the names of the selling agents or if the mill sells direct. All this and much other information contained in this book is arranged in a way to be instantly accessible.

American Directory of the Knitting Trade.

Published Annually in a handy size for the pocket, $1.00.

It contains **full reports of every knitting mill** in the United States and Canada, giving capitalization, names of the officers, including superintendent and buyer; kind of goods made; number of knitting machines, whether latch or spring needle; number of sewing machines; whether the mill dyes or bleaches or finishes; kind of power; number employed; selling agent; kind of yarn bought; lists of the jobbers, manufacturers' selling agents, commission merchants, department stores and large retailers handling knit goods and the name of the person in charge of the knit goods department. List of dyers, bleachers, finishers, printers, etc., making a specialty of knit goods work. Special copyrighted maps of the mill districts, showing the cities and towns where there are knitting mills. It is indexed so any town or mill may be quickly found.

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D=M Gum Tragasol will prove to any man *open to conviction* to be the best product on the market for warp sizing. While wonderful strides have been made in methods of dyeing, machinery employed and in fact all branches of mill business, warp sizing is where it was fifty years ago as far as compounds are concerned. Tragasol is not a compound and deserves the closest consideration of mill men anxious to improve quality and increase production.

DANKER & MARSTON
BOSTON

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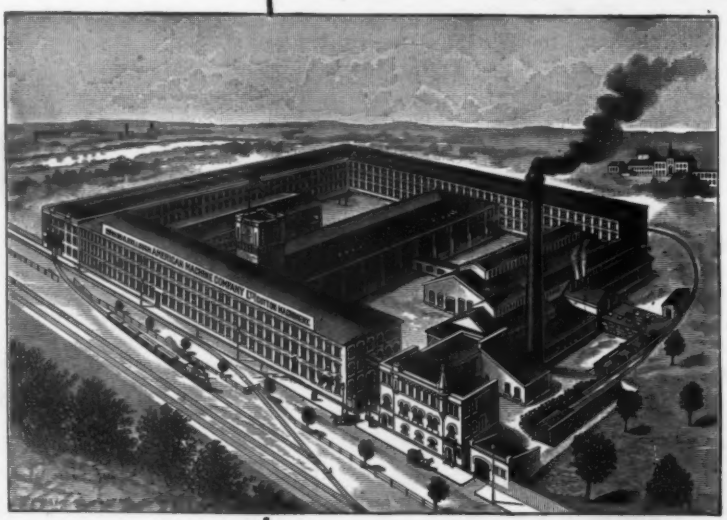

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The Textile World and Textile Record.

VOL. 36 (NEW SERIES.) February, 1909 No. 5

Monthly Comment.

Protection.

But why not consider the simple and effective plan of repealing all duties upon raw wool?—The Journal of Commerce.

Because both the wool grower and wool goods manufacturer are American producers, and as such one has the same fundamental right to protection for himself and the general welfare as has the other. The man who wants everything free that goes into his mill and everything protected that comes out of it deserves no consideration and will probably receive none.

India and Lancashire.

A blue book recently issued by the British government reviews the trade of India for the year ending March, 1908, and sheds a flood of light on the causes underlying the misery and discontent among the unfortunate inhabitants of that country. Some part of India is always in a state of famine, and during the year covered by the report the famine stricken district covered an area of 133,000 square miles, having a population of 49,000,000. This is more than half the population of the United States, and a territory equal in size to the States of New York, Pennsylvania and Ohio. The Indian government expended $16,975,980 during the year for famine relief, but even that resulted in but a slight mitigation of the distress. These figures, according to the report, afford but a partial gauge of the intensity of the famine, for the rains were either excessive or deficient all over the country and every staple crop was seriously curtailed. Such is the condition of India which is governed by a system that tends to confine its inhabitants to agriculture and keep them dependent on distant countries for their supply of manufactured goods.

The British government allows a duty of only 3 1/2 per cent. to be imposed on cotton manufactures imported into India, and under this system of free trade vast quantities of foreign cotton goods are imported, chiefly from Lancashire, the value of this class of merchandise for the year covered by the report being $155,657,538. Cotton goods form the bulk of the imports of manufactured articles, the total imports and the famine relief being paid for by the agricultural products of a starving people. There is, of course, opposition to this system among the people of India, but they are for the present powerless to effect a change and as a result India is seething with discontent that may at any moment break out into open insurrection. One indication of this situation has been the spread of the boycott against English goods, which is known as the Swadeshi movement. This is the Indian substitute for a protective tariff. In its early stages the Swadeshi movement threatened

to be as effective as a tariff, but according to the British government report, Lancashire circumvented it to a considerable extent by changing the trade-marks and names on the fabrics. Among a people to whom symbols mean so much this device has been so effective that Lancashire's exports of cotton goods to India in this year of famine and hard times show an increase over those of the previous year.

Books on Cotton and Cotton Manufacturing.

A list of all books dealing with cotton and cotton manufacturing is being compiled by C. J. H. Woodbury, secretary of the National Association of Cotton Manufacturers, and will, when completed, be published in the proceedings of the association and separately for distribution. This is a very useful work and deserves the cooperation of everyone in the trade. Mr. Woodbury is working hard to make the list complete and has issued the following circular calling attention to the undertaking and asking for assistance.

This Association is frequently addressed by members for information on books pertaining to the cotton manufacture. Many of them have been published years ago by firms which are not now in business or are not frequently advertised, and the titles of many are of such a nature as not to be readily ascertained by consultation of a public library index.

The Secretary is compiling a bibliography of books on cotton manufacture, dyeing, bleaching, printing, cotton machinery, mill construction, and also those of an historical nature pertaining to the cotton industry, and on the cotton fiber, whether published in the United States or in foreign lands, and the results will be submitted as a paper to be read by title and inserted in the "Transactions" at the 86th meeting of this Association.

Such a list of books has never been prepared, and it is believed that it will be of great usefulness to those engaged in the business.

Will the members, therefore, kindly send to the Association the title, author, publisher, and date of any such volumes in their libraries, not omitting any book either because it is old or because it is recently published and therefore assumed to be known through advertising. It is preferable to have a number of duplicates of titles rather than to omit one book, as such duplicates will be cancelled in editing the lists.

A large number of titles are in hand, but if the work is to be well done it must be thoroughly done, and this can be accomplished only through the cooperation of the members, which is urgently requested.

$150,000,000 per Year for Machinery and Supplies.

The textile group of industries is perhaps the most important branch of manufacturing in the United States. It manufactures the material for clothing the people, with the exception of their foot-wear, and the straw headgear for men and women.

In the number of wage earners the textile and allied industries are far in excess of any other group. The census of 1905 states the number of wage earners to be 1,156,305, which is only slightly less than the combined number employed in the two other great divisions of industry, namely, food and kindred products and iron and steel and other products. The census report goes on to state that the extent to which an industry gives employment and the amount which it pays in wages is a better test of its importance than the capital it requires, the cost of materials or value of the product or even in the added value of the process of manufacture.

The textile group of industries as reported by the 1905 census includes 4,563 establishments divided as follows:

Cotton goods	1,077
Cotton small wares	77
Hosiery and knit goods	1,079
Wool manufactures	1,213
Silk goods	624
Flax, hemp and jute products,	133
Dyeing and finishing	360

The Official American Textile Directory for 1908 reports upwards of 6,000 textile establishments, the difference being accounted for not only by the natural growth of the industry during the past three years, but because many establishments which are classed by the trade as textile are grouped separately by the census reports. Among these are wool scouring establishments, shoddy mills, wool and felt hat factories and other miscellaneous establishments of kindred nature.

The capital employed in the combined textile industries in 1905 was $1,343,324,605, and at the present time is doubtless in excess of $1,500,000,000. It is, however, in connection with the annual purchasing

power of this great industry that the readers and advertisers in the Textile World Record are concerned and the following figures are presented as being a close approximation to the facts and afford a basis for the consideration of any concern which is in doubt as to the importance of the textile field or any portion of it.

The following figures do not include the cost of raw materials used in the process of manufacture; that is to say, they do not include cotton, wool, silk, flax, jute, yarn, shoddy, etc. They include the average amount of money spent annually for new machinery by new enterprises and for the replacement of old machinery by existing mills and for the enlargement of existing mills. They also include the cost of other materials besides the main products which enter into the cost of goods, such, for instance, as mill supplies, oils, dyestuffs and chemicals, belting and the incidentals that every factory uses. They include power equipment, including steam, water and electric, but do not include the cost of fuel or the rent paid for power.

The census figures furnish many of these figures in detail, while some have to be estimated. The basis of estimating has been as follows: It is assumed that the average life or wear of machinery is twenty years. In many cases it is much less than this, while some old fashioned concerns keep portions of their machinery in use for longer periods, but we have taken this as a basis and have called the annual replacement cost 5 per cent. of the total value of the machinery employed in the industry, according to 1905 census figures.

The estimate of the cost of new machinery is obtained by subtracting from the 1905 census figures of value of machinery, those for 1900, which gives the increase of the machinery value for five years and divided by five we arrive at the average expenditure for new machinery in the annual expansion of the industry. The other item of "mill supplies and other materials" is taken from the census figures.

Cotton Group.

Expenditure for the replacement of machinery in existing establishments	$15,000,000
Expenditure for machinery in new mills	12,000,000
Expenditure for mill supplies and other materials, including raw materials	25,000,000
Total annual expenditure	$52,000,000

Woolen and Worsted Group.

Expenditure for replacement of machinery in existing establishments	$5,000,000
Expenditure for machinery in new mills	5,000,000
Expenditure for supplies, etc.	31,000,000
Total expenditure	$41,000,000

Knit Industries.

Expenditure for replacement in existing mills	$2,000,000
Expenditure for machinery in new mills	2,000,000
Expenditure for supplies, etc.	14,000,000
Total expenditure	$18,000,000

Dyeing and Finishing.

Expenditure for replacement in existing mills	$900,000
Expenditure for machinery in new mills	800,000
Expenditure for supplies, etc.	17,000,000
Total expenditure	$18,700,000

Silk Group.

Expenditure for replacement in existing mills	1,000,000
Expenditure for machinery in new mills	900,000
Expenditure for supplies, etc.	4,313,000
Total expenditure	$6,213,000

Flax, Hemp and Jute.

Expenditure for replacement in existing mills	$500,000
Expenditure for machinery in new mills	500,000
Expenditure for supplies, etc.	3,725,000
Total expenditure	$4,725,000

Recapitulation.

Cotton group	$52,000,000
Wool and worsted	41,000,000
Knitting mills	18,000,000
Dyeing and finishing ..	18,700,000
Silk group	6,215,000
Flax, hemp and jute ..	4,725,000
Total	$140,738,000

As the above figures include only the 4,563 establishments covered by the census figures and do not include the entire 6,000 establishments reported in the Official American Textile Directory it is a fair assumption that the grand total would be increased at least 25 per cent. if the figures for all the mills reported in the Directory for 1908-09 were included in the estimate.

It is interesting to note what an even division there is between the expenditure for annual up-keep and replacement of old machinery by new mills, and the amount expended for new machinery in the new mills.

The total figures are impressive and cannot fail to convince any reader of the enormous buying power of the great field covered by the Textile World Record.

It must be remembered that it successfully covers all branches of this industry and counts its subscribers not only among cotton mills, but from woolen and worsted, knitting manufacturers, dyers, bleachers and finishers and to some extent from silk, flax and jute manufacturers. It numbers its readers wherever there are textile mills. Its circulation is not divided on sectional lines, but goes to mills of the South as well as to those of the North, East and West and its advertisers get the bulk of this vast annual expenditure for machinery and supplies.

Branding Genuine Goods and Imitations.

A bill has been introduced in the House of Representatives by Congressman Hull, of Iowa, and referred to the committee on interstate and foreign commerce, for the regulation of the sale of genuine and imitation products. It prohibits the manufacture, transportation and sale of all articles that may be "misbranded" within the meaning of the act, and also prohibits the advertising of any imitation as genuine. Sections 8 and 9 of the bill provided for stamping or tagging imitations and genuine goods to indicate the material from which it is made. This section is as follows:

Sec. 8. That for the purpose of this Act an article be deemed to be "misbranded"

First. If there be not stamped on each article or upon a tag attached thereto in such a manner as not to be easily detached therefrom a statement that it is an imitation of the genuine article, which its name imports it to be, together with the name and address of the manufacturer thereof; or, if the same be a composition or combination of more than one mineral, metallic, animal, or vegetable substance, which is designated in the state of nature by a definite name, and there be not stamped on such article or on a tag attached to such article in such a manner as not to be easily detached therefrom a statement of the fact that the said article is a composition or combination and the name and proportions of the constituent elements entering into the same, together with the name and address of the manufacturer thereof.

Second. Publicly advertising any imitation of any article as the genuine or of any compound or combination under the name of any single element thereof, or as containing more or less of any element than the same actually contains.

Sec. 9. That all articles of commerce as defined by this Act which are not imitations shall be stamped or tagged in the same manner as provided in section eight of this Act for the stamping and tagging of imitations, such stamp or tag to state the true name of the material of which said article is manufactured, together with the name and address of the manufacturer thereof.

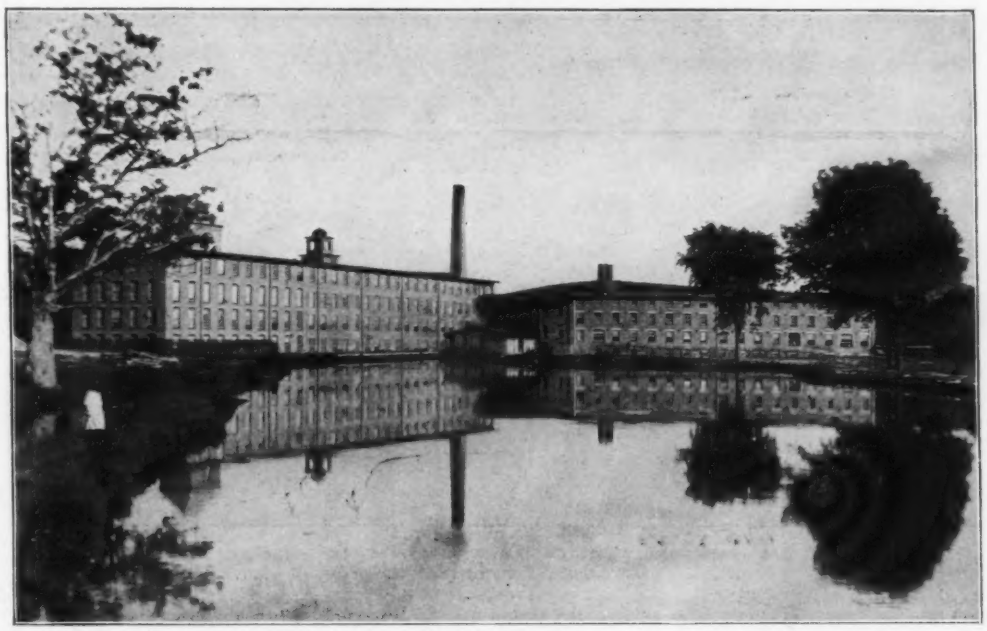
For the textile industry this bill has more significance than appears on its face. Although textile goods are not specifically mentioned the bill evidently means all that previous so-called shoddy bills have meant. For this reason it should receive the immediate attention of textile interests. Bills like the Grosvenor shoddy bill, which was introduced in Congress in 1902, have not only been defeated, they have been made ridiculous, largely through the exposures of their absurdities in the Textile World Record. In all probability no bill of like character could become a law if its real character was known. The danger in the Hull bill is that it may become a law because its real intent is concealed in general phraseology.

The imports of cotton yarn into China in 1907 were valued at $44,819,672.

How Much Wool to Make a Pound of Cloth?

THE LEGAL REPLY.

Every wool goods tariff schedule placed on the statute book since 1861 has, with one exception, tried to give an answer to this question. The exception was the Wilson bill which made an answer unnecessary by making wool free of duty. And with this exception the legal reply has been with slight variation, "Four pounds of grease wool." The connection of this question with the wool goods tariff results from the specific duty on wool. This in turn necessitates what is known as the compensatory duty on wool goods, which is assumed to be equivalent to the duty levied on the wool used in manufacturing the goods. The Dingley duty on wool of the first class is 11 cents a pound. The law assumes that because of the tariff the American manufacturer is compelled to pay 11 cents a pound more for the wool than it costs the foreign manufacturer. Accordingly a specific duty per pound of cloth equal to the duty on four pounds of grease wool of the first class is placed on wool goods valued above a certain amount, to compensate the American manufacturer for the increased cost of the raw material. This is legally supposed to leave the American and foreign wool goods manufacturer in the same relative position as would prevail under free trade in wool. For goods valued at 40 cents a pound or less the ratio is three pounds of grease wool to one pound of cloth. The medium and high grades of goods, however, come within the four to one classification, and, owing to the low valuation the specific duty on the low grade goods is higher, rated by value, than on the medium and high grade cloths.



THE HECLA MILL, UXBRIDGE, MASS., WHERE THE 46-MONTH TEST OF SHRINKAGE IN WOOLEN MANUFACTURING WAS MADE.

To protect the American manufacturer against competition with cheap foreign labor an ad valorem duty is placed on wool goods in addition to the compensatory specific duty already mentioned. The two constitute the system of compound duties, a combination of a specific duty to balance the duty on

wool, with an ad valorem duty to protect the manufacturer.

A COMPREHENSIVE TEST.

While nearly every tariff act that has levied a duty on wool since 1861 has been based on the assumption that four pounds of grease wool is required for a pound of cloth, this conclusion has been vigorously disputed, especially when the tariff happened to come up for revision. It was widely discussed in 1884, 1885 and 1886 in connection with the Morrison tariff bills, and the widely divergent opinions then expressed by experts awakened in my mind a desire to determine the facts beyond question. In the last named year an unusual opportunity presented itself to me to make a test of the shrinkage in manufacturing carded woolen cloth. In the latter part of that year, 1886, I took charge, as superintendent, of the Hecla Mill at Uxbridge, Mass. The conditions were very favorable for a test. The mill was practically new, there being but a small amount of old yarn on hand at the beginning. A very uniform grade of all wool goods was manufactured. The product included a fine cassimere fabric made of all new wool, and a line of all wool cheviots in which the waste or by-products of the mill were consumed. No cotton was used. The late S. M. Wheelock was treasurer of the company and he frequently made the remark when passing through the mill, "When cotton comes into this mill I go out of it." He stayed in. It was in this mill and during the period covered by the test, that the cloth was made for the uniforms worn by Gen. Harrison's regiment at his inauguration as President of the United States on March 4, 1889.

THE AGENT, SUPERINTENDENT, BOOKKEEPER AND OVERSEERS AT THE HECLA MILL, UXBRIDGE, MASS. FROM A PHOTOGRAPH TAKEN DURING THE 46-MONTH TEST.

Reading from left to right; John Kearns, dry finisher; Samuel S. Dale, superintendent; Adolph Kruger, designer; James Fagan, overseer of weaving; Ellsworth Southwick, master mechanic; J. H. L. Keegan, overseer of carding; William Pennell, wet finisher; Thomas Giles, overseer of wool sorting; Philip Reynolds, bookkeeper; Arthur Wheelock, agent; Charles Woodhead, overseer of spinning; Thomas L. Cavanaugh, dyer; Michael Tracy, overseer of dressing.

When taking charge of the mill I had, of course, an accumulation of mill data bearing on the shrinkage of stock in the various processes of manufacturing. But these statistics had been obtained by tests of isolated lots, such as are necessarily made by every manufacturer. Such tests were not comprehensive enough to settle beyond dispute the question of shrinkage in manufacturing. What was needed was a test covering the production of an entire mill for a period of years, so as to include practically all of the possible variations in material and proc-

esses, and give a result that could be safely taken as an average. Stimulated by the discussion of the tariff and by the exceptional opportunity, I resolved to make the test on the extensive scale that was then possible.

THE ONLY BASIS FOR THE TEST.

The scoured weight of the wool was selected without hesitation for the test. Of course the tariff law was based on grease weight, but the adoption of such a basis

Shrinkage in Manufacturing Carded Woolen Cloth.

Test made at the Hecla Mill, Uxbridge, Mass., during the 46 months from Dec. 31, 1886 to Oct. 31, 1890.

Summary No. 1.

New Stock delivered to pickers:		
Wool (scoured & dyed)	1,087,616 lbs.	
Camel's hair noils	600 "	
Waste (bought)	29,370 "	1,117,586 lbs.
Yarn on hand 12/31-1886	1,000 "	
" bought	29,650 "	30,650 "
New Stock delivered to the machinery		1,148,236 "
Stock on hand 10/31-1890	46,213 "	
" sold	947 "	47,160 "
Stock Consumed		1,101,076 "
Finished Cloth		868,548 "
Loss (invisible)		232,528 "
" "		21.12%

Summary No. 2.

New and old Stock delivered to pickers		1,354,946 lbs.
Yarn on hand 12/31-1886, and bought		30,650 "
New & old Stock delivered to machinery (gross)		1,385,596 "
Stock on hand 10/31-1890, and sold		47,160 "
New & old Stock, delivered to machinery (net)		1,328,436 "
Finished Cloth		868,548 "
Loss (visible and invisible)		469,888 "
" " " "		35.11%

would have made my test worthless. This is evident to anyone having any knowledge of manufacturing wool goods. Grease wool is received at the mill in lots of widely varying shrinkage in scouring, no two lots yielding the same percentage of clean wool, the loss being due to the removal of grease and dirt, which is allowed to run to waste into the stream.

The following lots used at the Hecla Mill during the test show the wide variation of shrinkage in scouring and the worthlessness of any test such as I had in mind if based on the grease weight of the wool:

Date	Bought of	Weight	Wool	Shrinkage in scouring
May 18-88	H. B. & Co.	18,901 lbs.	Texas	76%
April 10-90	J. K. & Co.	23,836 "	Oregon	69%
Feb. 17-87	H. B. & Co.	43,532 "	California	62%
April 28-87	C. Bros.	17,424 "	Oregon	47%
June 24-87	L. & M.	30,425 "	3/8 blood	35%
June 12-90	H. K. & Co.	10,092 "	E. India	16%

It was part of my duties as superintendent to weigh the scoured and dyed wool in batches to the pickers, and this I did personally for the entire period of the test with the exception of about three weeks. This not only gave me a personal knowledge of the amount of material delivered, but enabled me to keep a separate record of the new stock and by-products, which was essential to accurate results. The test could have been continued longer, but it was brought to a close at the taking of the regular inventory on Oct. 31, 1890, because at that time the spun yarn on hand was nearly equal to the yarn that had been purchased and used during that period. This condition would probably not occur at any future inventory and consequently the account was made up at the end of 46 months.

A SUMMARY OF THE RESULTS.

The results are summarized in the accompanying statement. The first summary takes account of new stock only, the by-products being omitted, as they were taken into account when the original material was delivered to the pickers. The finished cloth includes the cloth woven but unfinished on Oct. 31, 1890, a deduction for loss in finishing being made at the average rate for the 46 months. This summary gives the loss of weight which cannot be accounted for by any tangible material, amounting to 21.12 per cent. of the weight of the scoured and dyed material delivered to the pickers. In other words, 1.27 pounds of scoured wool produced 1 pound of finished cloth.

The second summary takes account of all material delivered to the pickers, whether new stock or waste products, and the loss here indicated, 35.11 per cent., includes both that which can be accounted for by tangible by-products and that which cannot. In other words 1.54 pounds of wool and waste products was delivered to the pickers for every pound of finished cloth produced.

These are the results of what is probably the most extensive test ever made to determine the shrinkage in manufacturing wool goods. It was made because of its bearing on the tariff question. It necessitated a great deal of extra labor and care for the four years, from 1886 to 1890, and the record has been carefully guarded for over eighteen years while waiting for the time for its publication to arrive.

A LEGAL FICTION.

What are the conclusions to be drawn from this investigation? The most obvious one is that the present legal ratio of four pounds of grease wool to one pound of cloth is worthless, a legal fiction resting on a grease and dirt basis, capable of justifying almost any ratio that might be named. Take, for example, the second summary and the six lots of grease wool given above, used at the Hecla Mill. Is 6 3/8 pounds of grease wool required for one pound of cloth? Certainly, if it is such Texas wool as was bought of H. B. & Co. on May 18, 1888. Is five pounds of grease wool required for one pound of cloth? Of course, if such Oregon wool as was bought of J. K. & Co. on April 10, 1890. Is four pounds of grease wool required for one pound of cloth? Yes, if such California wool as was bought of H. B. & Co. on Feb. 17, 1887. Is three pounds of grease wool required for one pound of cloth? To be sure, if such Oregon wool as was bought of C. Bros. on April 28, 1887. Is two and three-eighths pounds of grease wool required for one pound of cloth? Without a doubt, if such 3/8 blood wool as was bought of L. & M. on June 24, 1887. Is

1 7/8 pounds of grease wool required for one pound of cloth? Assuredly, if such East India wool as was bought of H. K. & Co. on June 12, 1890.

The average yield of cloth from grease wool, even if it could be known, could not be safely adopted for assessing duties on goods, because wool is used by the mills, not in lots of average shrinkage, but to suit the fabric to be made. One cloth may be made of the lightest shrinking wool; another, of the heaviest.

ANY RATIO IS POSSIBLE.

And this is not all. The grease and dirt basis has been legally made to expand far beyond the limits of shrinkage in scouring. The wool goods schedule of the tariff law not only states that four pounds of wool, carrying widely varying proportions of grease and dirt, is required for one pound of cloth, but it also includes under this designation all fabrics containing any wool whatever, whether made of all wool, or of part wool and the remainder of cotton, shoddy, waste, silk, flax, or any other material, animal, vegetable or mineral. Thus the possibilities of establishing ratios between grease wool and finished cloth are extended ad infinitum. Not only is four pounds of grease wool required for one pound of cloth, but one pound of grease wool will make four pounds or four hundred pounds, yes, or four thousand tons, in fact any quantity of cloth that may be named, all depending on the proportions in which the wool is mixed with other material in the fabric. Under this legal classification there is no ratio between grease wool and finished cloth in the entire gamut of arithmetic that cannot be supported by isolated examples from mill practice. The tariff law makes the ratio four to one and on this legal fiction the structure of a specific duty on wool and a compound duty on goods is erected.

This system of wool and wool goods duties should be reformed at the coming revision of the tariff. The evils resulting from it are numerous, serious and obvious. If that reform is hastened by this plain statement of fact, I shall feel well repaid for the effort expended in making the test from 1886 to 1890, and for having treasured the data up to the present time.

SAMUEL S. DALE.

Boston, Mass., Jan. 20, 1909.

WASHINGTON NOTES.

During a recent conversation with Representative Currier, Chairman of the Committee on Patents, I learned that there is little chance for any retaliatory patent legislation by Congress at this session. Aside from the fact that the Congress will have its hands full with the usual routine legislation during the few remaining weeks of its existence, there is a disposition to go slow with all patent legislation relating to foreign countries. Of the four or five so-called retaliatory bills presented last session, it is difficult to decide which one should become a law. All have their good points, and all are open to objection in some particulars, as was pointed out by me last spring, for the law that is finally passed must not impose any hardship upon either inventor or manufacturer.

* * *

Another reason for making haste slowly in this matter is that the State Department is endeavoring to negotiate patent treaties with several European countries, and in framing a new law much will depend upon what this country is able to accomplish in this direction. There is no doubt that a very satisfactory treaty will be negotiated with Germany, but on the other hand it is extremely doubtful if any treaty can be made with Great Britain, the British framers-that-be declining to change the existing order of things, as they are satisfied with the present (British) law. In the end the United States will doubtless be compelled to enact a retaliatory measure, not aimed at England alone, but made broad enough in its scope to meet the case of other countries that may decline to enter into equitable agreements—in other words, an international law. Congress, therefore, is very willing to wait until the State Department has acted, after which the screws may be put on where the squeezing will be most effective; and I am inclined to believe that in the case of Great Britain—

in the language of the street—it will be "good and plenty."

* * *

The tariff? As far as the Ways and Means Committee is concerned, it appears to be a case of saw wood and say nothing. The scribes are in evidence, ear trumpets screwed into position, pencils poised, and a smile of hope and expectancy writ all over their faces, but—the wind bloweth where it listeth, and thou hearest the sound thereof but cannot tell whence it comes or whither it goeth. "Leaks" there may have been, and there will be "confidences" as time goes on, but for the average reportorial seeker after truth there's but one answer: nothing doing.

* * *

I met recently Mr. J. M. Anderson of Mexico City, importer of textile machinery, who informs me that the textile industries of the republic are in a flourishing condition, and that considerable new machinery is being installed. He reports 160 cotton mills in operation at the present time, besides several jute bagging mills, and other mills using native bagging fiber, and a linen factory that is working to its full capacity. The cotton industry employs over 30,000 persons, operating upwards of 700,000 spindles, and over 22,000 looms. Nevertheless Mexico imports a considerable amount of cotton piece goods, English mills furnishing the lion's share. The native Mexican cotton is of good length and strength, though less silky than the cotton of the United States, and not so clean. About one-half of the cotton required for manufacture is grown in the republic, representing last year only 80,000 bales against 170,000 in a previous year.

* * *

One of the most important investigations of the Department of Agriculture, in recent years, has been directed against the ravages of the cotton boll-worm, in Texas. The work has been carried on by the Bureau of Entomology—with the cooperation of the Bureau of Plant Industry—and has resulted in saving millions of dollars to the cotton planters of the infected region. Mr. W. D. Hunter, who has had immediate charge of the field work under Dr. Howard, chief entomologist, informs me that in a bad year the damage to the cotton crop in this one state has amounted to $25,000,000. As a result of the government investigations it is now possible to save at least one-half of the annual damage. The original home of the weevil is the plateau of Mexico, and the invasion dates back to about 1892. By 1894 the pest had spread to half a dozen counties in southern Texas, and since that date its ravages have extended over the state at the rate of more than 5,000 square miles annually. A conservative estimate shows that since the weevil has invaded this country it has caused a loss of 2,550,000 bales of cotton, worth $125,000,000.

* * *

The fight has been a hard one, though the Department has had the fullest cooperation of the planters, who have been only too willing to carry out its recommendations. The situation is met in various ways, but chiefly by using every means to bring the crop to an early maturity, and by a rigorous cleaning up of the fields, and the destruction of all grass and weeds and other trash, the old cotton stalks, and, in fact, everything in which the weevils might hybernate. This is foremost in importance among the methods of control, as the killing of the hordes of adult weevils when they are ready to enter hybernation—at the beginning of cool weather—prevents the development of millions more than would emerge to pass the winter.

By the early planting of earliest maturing varieties of cotton, and by stimulating the growth of the plant through the use of commercial fertilizers, the farmer can rush his crop so that a large number of squares and bolls will have formed before the weevils have multiplied to any considerable extent. For some time the department has been carrying on a series of breeding experiments, in connection with this work, and a number of early maturing varieties of cotton can now be recommended. Those of our readers who desire further information on this subject would do well to write to the Department for Farmer's Bulletin No. 344, prepared by Mr. Hunter, the proof-sheets of which I have been permitted to see.

RENOUARD.

The Revision of the Textile Tariff.

DEVELOPMENTS OF THE MONTH.

AS SEEN BY THE EDITOR OF THE TEXTILE WORLD RECORD.

A large number of statements bearing on the tariff as affecting various branches of the textile industry have been filed with the Committee on Ways and Means since our last issue, and it is expected that a bill will be framed and reported to the House of Representatives by the time our next issue appears. The plan, as generally understood, is for President Taft, soon after his inauguration, to call a special session of the 61st Congress for the purpose of revising the tariff law.

BOBBINET.

Manufacturers of bobbinet, and lace curtain manufacturers who use bobbinet appeared before the committee, the former asking for an increase; the latter, for a reduction of the duty. George J. Martin, West Newton, Mass., presented the case for the curtain manufacturers in a statement from which we take the following extracts:

In behalf of the novelty curtain manufacturers, I respectfully request that your committee include in the next revision of the tariff schedule a reduction in the duties therein on cable and mosquito nettings made out of cotton yarns, Nos. 20 to 60, inclusive, as covered in paragraph 339. These nettings are used extensively in the manufacture of novelty lace curtains. I base my request upon the following reasons:

(1) The present duty of 60 per cent. on cable and mosquito nettings made out of cotton yarns Nos. 20 to 60, inclusive, is needlessly high and seriously interferes with the development of the novelty curtain business, in which I am engaged.

(2) The duty of 60 per cent. on cable and mosquito nettings, the raw materials for us, being exactly the same as the duty imposed upon finished manufactured curtains imported from Switzerland and France, allows no margin for the difference between the cost of labor we employ and the low-paid peasant labor employed there by the Swiss and French makers of curtains with whom we must successfully compete if our industry is to grow.

(3) A withdrawal of the duty on cable and mosquito nettings as mentioned would enable the manufacturers of novelty lace curtains to increase largely their output on an American-made line of novelty curtains, which output is now greatly curtailed because of the excessive cost resulting from the unnecessarily high duty on cable and mosquito nettings used in this industry.

(4) The novelty lace-curtain industry is truly an infant industry that in every way merits just consideration in the present revision of the tariff schedule if the broad and beneficent principle of protection to growing American industries and well-paid American labor is to govern. The novelty lace-curtain industry is comparatively new, and its present development dates from 1900, or since the introduction of the present tariff schedule.

The present duty of 60 per cent. on cable and mosquito nettings, as provided for in paragraph 339, is of no consequence so far as the protection principle is involved. There are less than a total of 200 people, on the most liberal estimate, engaged in the manufacture of nettings, as previously mentioned, in this entire country, and to maintain a discriminating tariff of 60 per cent. on these nets to the injury of labor and the benefit of scarcely anyone would be nothing short of ridiculous.

The duty on nets did not seem ridiculous to Thomas J. Diamond, who appeared in behalf of the Lackey Mfg. Co., Newburgh, N. Y., the only firm manufacturing nets in the United States. He said:

In 1900 the business of manufacturing nets was new. The founder of this company had not embarked in it until he received or believed he received the proper protection to warrant his venturing into the business.

He was instrumental in having section 340 enacted; this company was formed and the business went on.

Nottingham lace-warp machines were installed and are still in use in our mill. The entire product of the mill is made on Nottingham lace-warp machines.

This company found it impossible to compete with foreign markets, and upon examination it was ascertained that product like that manufactured by this company was being admitted to this country under section 339.

Appeal was made to the collector and appraiser of the port of New York.

The General Board of Appraisers decided that the material manufactured by the Lackey Manufacturing Company was "net" and that it was properly admitted under provisions of section 339; and that the language employed by section 340 was not sufficiently broad to cover this class of goods.

Mr. Griggs—You are the only manufacturer of that in this country?

Mr. Diamond—The only manufacturer exclusively so engaged. There are other manufacturers, but they have other business as well.

Mr. Griggs—You are not one of the gentlemen to whom Mr. Martin referred, are you?

Mr. Diamond—Mr. Martin is one of our customers, and we always lose money on his orders. He invariably beats us. We have got to take his

orders to keep our organization going; and what we make in dealing with the retail trade we have got to pay to Mr. Martin because he can go out in the market and get goods cheaper than we can make them.

Mr. Griggs—You heard him say that some people pretended that they want to make this stuff, but they do not?

Mr. Diamond—We did not put $250,000 in a plant there for fun.

Mr. Griggs—I do not think so, either.

Mr. Underwood—How much profit did you make on it in the year 1906.

Mr. Diamond—We have never made any, up to date.

LACE CURTAINS.

Clarence Whitman, treasurer of the Wilkes-Barre Lace Mfg. Co., asked for the retention of the present duty on Nottingham lace curtains:

The principal factors working against us in competition with the foreign-made goods are: (1) Exceptionally high cost of labor. (2) Absolute dependence for the running of the machines on special imported yarns.

The starting of the industry in this country necessitated the importation of skilled and specially trained help in almost all the departments of the manufacture. The demands of this labor with each period of development in the industry have been beyond our control, and we are now obliged to pay in excess of English and Scotch wage scales in most cases 75 to 80 per cent., and even in some cases our rates are nearly 100 per cent. over the prices paid in Nottingham and Glasgow for similar classes of work. This statement can be substantiated in the case of the weavers by comparison of printed scales of union wages prevailing in England, Scotland and America, and as applied to the varied classes of work made on the various "lay outs" of the lace-curtain machine.

The fine yarns specially spun for the industry which we are obliged to use, and without which no lace-curtain machine could be operated, are all imported. These yarns are the "bread and butter," so to speak, of the curtain machine. Attempts for many years past have been made by domestic spinners to meet the peculiar needs of the industry in this direction, but without success.

A like request was made by John Bromley & Sons, Joseph H. Bromley, the Lehigh Mfg. Co., and the North American Lace Co., of Philadelphia, and Marshall Field & Co. of Chicago. They were backed up by a letter from the Society of Lace Operatives of America protesting against any reduction of the tariff on lace goods. The importers' side of the case was presented in a letter from Thomas H. Watson of Mills & Gibb, New York.

Regarding John Bromley & Sons, Jos. H. Bromley, Lehigh Mfg. Co., and North American Lace Co., beg to say that the above are all the Bromley family; in other words, John H. Bromley. He has also absorbed the lace-curtain plant at Tariffville, Conn., and also the plant at Gouverneur, N. Y. The industry of Nottingham lace curtains is largely in the hands today of Joseph H. Bromley and his brothers. Through his method of operation, like the Standard Oil, he has practically vanquished every competitor. I sincerely hope that we may return to the purely specific duty, without the 20 per cent. ad valorem.

The figures I have just received from the American consul at Nottingham show the following:

Exportations for 1903, $236,171; in 1907, $78,104; for eleven months 1908, $46,887. The same would apply to St. Gall curtains. The exportations from St. Gall in 1895 were $1,242,382; in 1907, $931,679; estimated by American consul at St. Gall for 1908, $346,447.

These are all the facts I have at present; however, I think they should be enough to convince anyone that the tariff on lace curtains and nets is a little too high. The duty asked for on bobbinets by T. J. Diamond, of Newburgh, N. Y., would range from 140 to 175 per cent.

COTTON GOODS.

Kubie, Heimann & Co., New York, made the peculiar request that American cotton cloth exported for the purpose of being embroidered upon should be admitted free when reimported:

I have reference to the St. Gall, Switzerland, industry. At present all the cotton cloth used in the manufacture of Swiss embroideries is either of English or Swiss make. The advantages to be derived by the United States in adopting a law as above would be (1) a demand for cotton cloth manufactured in this country; (2) the employment of thousands of hands in the cutting out and putting up of such embroideries into pieces.

Endless complications and opportunities for defrauding the government would result from such a provision and it is to be hoped that the request will be ignored.

FINE COTTON YARN.

The Utica (N. Y.) Steam and Mohawk Valley Cotton Mills, giving employment to 2,000 operatives, argued for the maintenance of the present duties on fine cotton yarn and thread, their statement being in part as follows:

We are especially interested in the tariff on fine yarns and threads, as within recent years we have been, and still are, in competition with yarns and threads imported from Great Britain and Germany. Large quantities of fine numbers of yarns are at present imported and sold in competition with American-made yarns, after paying the duties prescribed by the Dingley tariff.

We believe that any reduction in the present rates on cotton yarns and threads or cotton piece goods will lead to large importation and the consequent stoppage of spindles engaged in the manufacture of fine cotton yarns and threads in this country.

FLAX AND LINEN.

A request for free flax was made by O. H. Ingram, of the Eau Claire (Wis.) Linen Co., in a letter from which these extracts were taken:

We have been trying for the past four or five years to raise flax for making crash and towels, but find it a very expensive experience. In order to save the fine fiber of flax which is used for shoe strings and small twine, it is necessary to pull the flax by hand. We have tried cutting it with a small reaper, but find that we cannot do that to advantage. In the old country where it is raised successfully it is pulled by hand. That is done in order to keep the stem of flax straight. It is then bound in small bundles six or seven inches in diameter, where the band goes around it, and it has to be thrashed by a special machine, passing the top end of the bundles between rollers that turn together. If it goes through the ordinary thrashing machine, it tangles up the fiber and breaks it up so that it is of no use for fine fiber or for tow, hence the expense of pulling it by hand and retting it has to be done by spreading it on the ground where it lays about ten days and is then turned over and remains on the ground or sod where it is usually spread for about ten days or more. After that it is taken up and bound again and taken to the mill for thrashing and is thrashed out as stated above, with the band remaining on the bundle and the tops of the bundles passing between the rollers which takes the seed out. Where they are raising flax for the seed only they make no use of the straw. It is simply grown for the seed. There have been some attempts made to use the straw, but so far it has not been successful.

The cost of labor seems to prohibit the pulling of flax by hand as we have been trying to do, and our experiment so far has been a failure; that is, it costs more than we can afford to sell the output of the mill at prices we have to sell to compete with the foreign market. The duty on the tow to this country enables the foreign countries to ship it here and keep the prices on the crash and towels so low that we are unable to compete.

I have been connected with this mill only about four or five years. I thought by growing flax here and pulling it and putting it through the process we have to for retting and thrashing that there could be crash and toweling made here so as to compete with the foreign-country shipments. Of course, one cent a pound seems a very small thing, and it is a small thing for the Government, but were it removed it would enable us here to continue to run this mill and have a small margin and employ a large amount of labor, both men and women.

The Stevens Linen Works, Webster, Mass., although not asking for free flax, called attention to the duty on flax as one reason why the tariff on goods should be maintained:

The Stevens Linen Works, of Webster, Mass., established in 1846, manufacture about 14,000,000 yards of crash toweling annually. Every pound of flax used by us is imported from other countries—mostly from Russia.

The machinery we use is nearly all imported, on which we pay a duty of 45 per cent., and the character of the machinery is such that mills have to be of very heavy construction, making the plant cost excessive.

With the present tariff we are able to keep our mills running, and at the same time it does not shut off foreign goods, which are still imported in large quantities in similar grades.

Our goods have an established market and are used throughout the country. With the duty of one cent per pound on flax and $20 per ton on tow, and the high-rate wages we are obliged to maintain, we ask that the present rates be continued on the goods we produce.

George F. Smith, of the Smith & Dove Mfg. Co., North Andover, Mass., presented a brief in behalf of 24 concerns, which, he stated, represented all the flax, hemp and jute spinners interested in schedule J. His reference to flax was as follows:

While there is very little flax raised for fiber in this country, we wish to encourage any fiber-producing industry and therefore ask that this duty remain.

Mr. Underwood—How long has the attempt been made in this country to grow flax?

Mr. Smith—It has been grown off and on in a tentative sort of a way for twenty years, I suppose.

Mr. Underwood—It has had a protection of a cent a pound for twenty years?

Mr. Smith—No, sir; it was free under the Wilson bill.

Mr. Underwood—It has had this protection of a cent a pound for how long?

Mr. Smith—Ten years.

Mr. Underwood—Ten or fourteen years?

Mr. Smith—Ten or eleven years.

Mr. Underwood—Twelve years. For twelve years it has had a protection of a cent a pound, and it has not developed the industry at all?

Mr. Smith—Nor sir: it has not.

Mr. Underwood—Under those circumstances do you not think it would be advisable for flax to be put on the free list, both to aid the home manufacturer and to reduce the cost to that extent to the consumer here?

Mr. Smith—As I said before, there is quite an industry in Kentucky and Nebraska in hemp, which competes directly with the flax.

Mr. Underwood—It is used in the same goods?

Mr. Smith—Not in the finer goods, but in the coarser goods.

Mr. Underwood—Well, you are interested in the home production, and for that reason you want the duty maintained on the flax; is that it?

Mr. Smith—Yes, sir.

Mr. Underwood—But on the flax alone, if you were solely looking at that proposition, you would have no desire to have the duty retained?

Mr. Smith—No, sir.

The Chairman—Why should it be maintained? That is what I am trying to get at. I do not care

so much for your desire as I care to know the reason why.

Mr. Underwood—He said he was interested in the home industry and wanted a duty on the raw flax to protect him against the foreign industry.

Mr. Smith—Do not mistake me; I am not personally interested.

The Chairman—Are you not afraid that flax would take the place of hemp if there was no protection or duty on it? Is that the idea?

Mr. Smith—It might, to a certain extent; yes, sir.

The Chairman—This committee is trying to investigate that subject, as to why there should be that duty of one cent a pound on flax, and if you can throw any light on it now we would be obliged to you.

Mr. Boutell—It seems to be an industry that was given protection, but that has not gotten beyond the very earliest infant stage.

Mr. Smith—I cannot say that we have gone very far with it.

Mr. Boutell—It certainly is a puzzle to an ordinary man to know why in this country, with its climate and soil, we cannot grow all kinds of flax with profit.

Mr. Underwood—Let me ask you a question. If the duty were taken off of raw flax, how much would that authorize a reduction of the duty on your finished product and leave you in the same position as you are in today?

Mr. Smith—From 7 to 8 per cent. Not 7 to 8 per cent. of the duty, but 7 or 8 points of the percentages.

Mr. Griggs—Counting your highest duty at 38 per cent?

Mr. Smith—Taking the average of the cost of the raw material—the importations.

Mr. Griggs—I say, counting it at 38 per cent., you think you could knock off 7 or 8 points?

Mr. Smith—Yes, sir.

Mr. Griggs—And make it 30 per cent?

Mr. Smith—Yes, sir.

Mr. Smith asked for a number of changes in the duties on goods, some to be lowered, and others raised, concluding with the following comparison:

In conclusion we most earnestly call the committee's attention to the fact that our industry receives less protection than that granted any other textile industry, as shown by the following figures: Wool, 58.19 per cent.; cotton, 53.38 per cent.; silk, 52.68 per cent.; linen, 33.66 per cent.

A vigorous appeal for a reduction of the duty on linen goods was submitted by Adolph Simon, president of the Chas. Simon's Sons Co., Baltimore, Md.:

Permit me, as a merchant, tortured with calculations of the duties on linens under our present tariff, to put in my plea. I have recently spent four hours calculating an invoice of linens from Scotland. It only cost $579 in Scotland, on which was paid $303 for duties—53 per cent.

The object of the Dingley tariff being protection of our home manufacturers, with incidental revenue, it follows that any class of manufactured productions that are not, owing to natural causes, produced in the United States at a paying price, that such articles should not have a duty placed on them in our tariff law, as there does not exist any struggling manufacturer to protect, nor are said duties even needed for revenue—the Government of the United States having a large surplus income.

The intelligent dealer in linen fabrics knows that, excepting an article of coarse grade of unbleached crash made by a Mr. Stevens of New England, and some half-cotton linen towels, there are not any linens manufactured in the United States; not any table damask, either bleached or unbleached; not any linen damask napkins; not any shirting linen; not any pillow-case linen or linen sheeting; not any towelings, such as "diaper" or "huckaback"; not any of the medium and better qualities of linen towels; not any linen "Holland," or linen drills; not any linen furniture covering; not any linen cambric in its many varieties; nor any other kinds of linen fabrics that consumers need, outside of the two exceptions mentioned—not any of these are made in the United States.

Now, what do the duties of 50 per cent. and more that are levied in the Dingley tariff on linen goods protect? Who are the United States manufacturers whose profits are protected? The answer is, there are none, excepting the manufacturers of linen collars, cuffs, and shirt fronts at and in the neighborhood of Troy, N. Y., who understood how to induce the congressional committee that compiled the Dingley tariff to allow the old duty of 35 per cent. to remain on plain bleached shirting linen.

As the income of the United States Government produces a large surplus, it surely ought to be apparent that for the sake of revenue the old duty of 35 per cent. on all linens is fully sufficient.

Robert Crothers, of the Rochester (N. Y.) Thread Co., submitted a statement filled with positive assertions, which seemed to challenge denial, indicating that the writer was familiar with both the manufacture and sale of linen thread and yarn. Following are extracts:

We herewith submit to your committee our argument in favor of a reduction in the tariff on linen thread and yarn.

At present 80 per cent. of the entire trade is controlled by the Linen Thread Company, 15 per cent. by two independent mills, and about 5 per cent. by the importers. The present tariff enables the combination practically to control the trade of the United States, and it also puts them in a position to shut out entirely, if they care to do so, the foreign manufacturers by a slight reduction in their present selling prices. There have been three advances in linen thread in the last two years. The brand which now sells at $1.20 per pound used to sell at $1.10 less 5 per cent., and 5 per cent., thirty days. One of these discounts was eliminated; the price list was then advanced to $1.15, and in May, 1907, to $1.20 less 5 per cent., and 5 per cent., thirty days. All the other brands have had a corresponding advance, and we argue that these advances were entirely uncalled for by

any rise in raw material or advances in wages. The combination consists of the following mills: William Barbour & Sons, Lisburn, Ireland; Barbour's Flax Spinning Co., Paterson, N. J.; Finlayson, Bousfield & Co., Johnstone, Scotland; Finlayson's Flax Spinning Co., Grafton, Mass.; Dunbar, McMaster & Co., Gilford, Ireland; Dunbarton Flax Spinning Co., Greenwich, N. Y.; W. K. Knox, Kilbirne, Scotland; Marshall & Co., Newark, N. J.; F. W. Hayes & Co., Banbridge, Ireland; Boston Thread & Twine Co., Boston, Mass.; Allentown Spinning Co., Allentown, Pa. The production of all these mills is sold in the United States only through the Linen Thread Co., of New York City. We assert that this is one of the largest combinations in the United States, and that the tariff enables them to do as they please with regard to prices.

To show that the Linen Thread Co. occupy a very strong position, we may say that in the past five years they have compelled the various manufacturers of fish nets to become a part and parcel of the Linen Thread Co. Fishermen on this side have generally demanded nets made out of Knox's thread, and the Linen Thread Co., which controls this thread, has been able to use this as a club over the heads of the netmakers, refusing to supply Knox thread to anyone outside the combination. Several of the netmakers here went against this for a time, notably the Starer Net & Twine Co., of East Hampton, Conn., and the H. G. & W. Lord Co., of Boston, Mass., but they have finally had to succumb.

William Barbour, of the Linen Thread Co., New York, called the attention of the committee to the possibility of Japanese competition:

I trust when Schedule J is being considered by your committee that you will bear in mind the fact that there is a concern in Japan, known as the Japanese Flax Manufacturing Company, with a capital of £600,000, controlling some 25,000 acres where flax is cultivated; and that this concern have 18 flax scutching mills of their own. We have only recently met with competition on the Pacific coast from this source, and I cannot say, at the moment, that it is competition we are anxious about, but it might be very serious, as the Japanese have very cheap wages as you know, and it is one additional thought in connection with the protection we ask.

KNIT GOODS.

The necessity for protecting the manufacture of knit goods against foreign competition was emphasized by Col. Albert Clarke, secretary of the Home Market Club:

I desire to call your attention to and present a letter which I just received from the William Carter Co., of Needham Heights, Mass., manufacturers of knit goods. They refer to the conditions of labor in England, Germany and France, and state that if the tariff is reduced greatly on their line of goods it simply means that these industries will be wiped out of existence and thousands upon thousands of people will be thrown out of employment. The manufacturers in this line are not affiliated in one gigantic trust or combination, and therefore may not be represented at this hearing, as the interest of the country really demands. He states that the only way that his firm could stand any reduction without specially suffering would be a corresponding reduction on worsteds, cotton and silk yarn, and any raw material, especially wool. They would be better satisfied to have the present duties remain.

The National Association of Hosiery and Underwear Manufacturers, claiming to represent 75 per cent. of the American manufacturers of hosiery, asked for an increase of the tariff on hosiery and underwear and submitted elaborate statements of comparative cost to prove the reasonableness of their request. Following are extracts from the statement:

Example 1. Comparative cost of 39-gauge half-hose, made of 60/2 lisle yarn, weight 1 pound.

	Chemnitz.	United States.
Yarn, dyeing, boxes, etc.,	$0.48	$0.65
Wages	.25	.80
Mill expenses	.13	.20
	.86	1.65
Difference in cost		.79
Duty collected at present		.63

Example 2. Comparative cost of 36-gauge women's cotton hose, made of 1/20 combed Egyptian yarn, 1 pound, 14 ounces.

	Chemnitz.	United States.
Yarn, dyeing and boxes	$0.57	$0.77
Wages	.20	.76
Mill expenses	.13	.20
	.90	1.73
Difference in cost		.83
Duty collected at present		.635

Example 3. Comparative cost of 39-gauge women's lisle hose, made of 70/2 combed Egyptian lisle, weight 1 pound, 6 ounces.

	Chemnitz,	United States.
Yarn, dyeing and boxes	$0.69	$1.15
Wages	.25	.83
Mill expenses	.13	.20
	1.07	2.18
Difference in cost		1.11
Duty collected at present		.76

Example 4. Comparative cost of 39-gauge women's mercerized combed Egyptian lisle, made of 70/2 combed Egyptian mercerized lisle, weight 1 pound, 6 ounces.

	Chemnitz,	United States.
Yarn, dyeing and boxes	$0.79	$1.44
Wages	.25	.83
Mill expenses	.13	.20
	1.17	2.47
Difference in cost		1.30
Duty collected at present		.78

A large percentage of German hosiery exported to this country is the product of the so-called "cottage industry" in the villages around Chemnitz. In

the "cottage industry" the manufacturer leases machines to individual operators, who work them in their homes and who are often assisted by each member of his family. The wages paid under this arrangement are incredibly low, even for Germany. There are no restrictions as to hours of labor and age of the workers. In figuring the comparative costs submitted we have not, however, taken the "cottage industry" feature of German hosiery manufacturing into consideration, but have based our calculation on the average paid in the factories of the Chemnitz district.

There has always been more or less undervaluation, notwithstanding the best efforts of the local appraisers to prevent same, but today the German manufacturers, through a system of averaging their selling prices, have brought it to apparent perfection. It is a well-known fact, which every buyer who visits Chemnitz will admit, if he is so disposed, that German manufacturers freely and unblushingly offer certain quantities of merchandise worth $1.25 at $1.00 (thus paying a duty of 15 per cent. ad valorem and 50 cents per dozen pairs specific, whereas if sold at their real value these goods would pay a duty of 15 per cent. ad valorem and 60 cents per dozen pairs specific), provided certain other quantities of better goods are purchased at $1.50 and $2.00 per dozen, the German manufacturer making sufficient profit on the quantities sold at $1.50 and $2.00, respectively, to average to him a satisfactory profit on the whole purchase. If asked for a price on each article separately he declines, saying that he is forced to sell all in conjunction in order to properly distribute the business on the various classes of machinery he is operating, thus keeping the proper balance in his plant; certainly an ingenious explanation, to say the least. Through this operation it is almost impossible for the local appraisers to establish and levy the duty on the actual market value, the same being so adroitly suppressed.

It is a well-known fact, common knowledge among reputable and honorable importers of hosiery, that many German manufacturers feel that evasion of American tariff laws is justified by the fact that it is no offense against German laws to offer to unscrupulous importers merchandise the actual market value of which is $1.15 on the following basis: $1.00 to be paid by invoice and 15 cents in cash, through the buyer's German agent. By this process the dishonest American buyer has an advantage over the honest importer of 10 cents per dozen in the duty; the American wage-earner receives less protection than Congress intended he should have.

We have given much study to this evasion of the tariff laws, and the only effective method to remedy it is to arrange the schedules so that the cost of cotton hosiery, duties paid and landed, in this country, will be such as to make such practices uninteresting. We believe this can be accomplished by the rates we are asking for.

Heretofore attention alone has been paid to the low cost of manufacturing cotton hosiery in Germany, which has been the principal exporting nation of this commodity. We would, however, call the attention of the committee to the conditions of cotton hosiery manufacturing in Japan. Within the past five years the Japanese have been rapidly erecting hosiery mills, which they have operated most successfully; up to the present time have confined themselves chiefly to supplying the needs of their own home market and that of China and India.

The hosiery craft would earnestly engage the attention of the committee to this probability, for if Japan continues to advance in manufacturing in the next five years at the same ratio as she has in the last five, American hosiery wage-earners will be confronted with a condition far more serious than that which faces them today with the low cost of labor and production in Germany.

TEXTILE MACHINERY.

The Textile Machine Works, Reading, Pa., made a plea for a higher duty on full fashioned knitting machinery, and from which we take these extracts:

Permit us to call your attention to an article manufactured by us which does not, in our opinion, in the tariff act of 1897, receive the protection that it is entitled to. We refer to knitting machines for making full fashioned hosiery.

We have been manufacturing machinery of this class for the past eight years, but have found it extremely difficult to compete in price with imported machines, coming principally from Germany. This is due entirely to the fact that our labor is from 100 to 200 per cent. more expensive than the same class of labor is in Germany.

The market value of these machines in this country is today about $2,500 and the comparative cost of the same is as follows:

	Germany.	United States.
Material	$400	$500
Labor	650	1,500
Cooperative expenses	100	200
	$1,150	$2,200

The above schedule is as nearly correct as our knowledge of the conditions of this industry, both here and in Germany, allows us to figure the costs. We have a number of workmen in our employ who formerly worked in the same trade in Germany, and the rate of wages which they command here varies from $15 to $25 per week, whereas for the same work the German workman of the same efficiency receives $6 to $12 per week.

On these highly complicated machines, composed of 45,860 parts, the cost of labor is two-thirds of the total cost of the machines, and it is plain to be seen that a duty of 45 per cent. is not sufficient to cover the difference between the labor cost here and abroad, plus an adequate profit for the capital employed.

The weight of these machines as we build them is approximately 8,000 pounds, while most of the German machines weigh only 6,000 to 6,500 pounds.

The price at which these machines are generally invoiced by the German manufacturers is approximately $1,500. They are generally shipped to a representative in this country, who, in turn, sells them to the manufacturers of hosiery. The cost to the agent of the foreign builder is approximately $2.150, or less than our cost.

We would respectfully ask that in framing the new tariff bill our case be given due consideration, and that a special item be included in the metal schedule providing for a duty on full fashioned knitting machines of 10 cents per pound, but in no case this duty shall be less than 50 per cent. ad valorem.

The argument for the maintenance of the present duty on textile machinery in general was presented by Robert F. Herrick, president of the Lowell Machine Shop:

The capital employed in the manufacture of textile machinery may be roughly estimated at approximately $40,000,000, and the number of men employed at, say, 20,000.

As hereafter shown, the increase in wages in this country (they have decreased slightly in England) during the life of the present tariff more than offsets in cost of production the increase in the rate of duty from the Wilson tariff to the present tariff.

The most accurate figuring we are able to make shows a net return on the capital invested in the American manufacture of textile machinery of approximately 7 1/2 per cent. The amount invested in the business is nearly twice as much as the volume of sales each year and the net return on the gross sales of about 14 per cent. means a net return on capital of only 7 1/2 per cent.; a very low return for any manufacturing business. We present herewith

THE COMBINED FIGURES OF THREE OF THE OLDEST AND LARGEST SHOPS.

The figures given are the averages for the past ten years, covering practically the period of the present tariff.

Amount of cash invested in the three shops referred to, including costs of plants and working capital	$14,500,000
Total business of the three shops per year	7,700,000
Total profit of the three shops per year,	1,071,000
Percentage of profit to capital invested, approximately	7½
Percentage of profit to business done, approximately	14

It is a fact that the English textile machinery manufacturers can add the present duty to their cost of production and yet sell their machinery in this country at prices lower than the American cost and still make a profit.

To illustrate, let us take the average business per year during the period covered by the present tariff of the three shops referred to.

As above stated, these three shops have averaged to sell per year a total of $7,700,000; deducting the profit shown above leaves for the actual cost of this machinery, without allowance for interest or other return on the amount invested, $5,629,000.

Of this cost labor is approximately 50 per cent.	$2,814,500
And material approximately 50 per cent.	2,814,500

The English cost of labor in their shops making similar machinery is something less than 50 per cent. of the American cost, and their materials may be estimated to cost not in excess of 75 per cent. of the American cost.

Applying these figures would make this same machinery cost in England:

Labor, 50 per cent. of American cost ..	$1,407,250
Materials, 75 per cent. of American cost,	2,110,875
Total English cost	3,518,125
Add for duty 45 per cent.	1,583,156
Total cost, plus 45 per cent. duty,	5,101,281
Margin for profit to English manufacturers, between cost in England and cost in the United States	527,719
	$5,629,000

This margin allows the English manufacturers a substantial profit in spite of slight additional costs for packing and, in certain instances, for freights, and still permits laying their machinery down here at the American cost.

As a matter of fact, the freights to southern points from England would very slightly, if at all, exceed the same freights from New England, and in many cases would be less.

To New England points not on the seacoast the American manufacturer would have a slight advantage, but in many cases, such as the textile centers of New Bedford, Fall River and Philadelphia, there would be no advantage to American manufacturers.

If the tariff were reduced, and English manufacturers were content with a fair profit, they could wipe out the business of the American manufacturers. The shops of the American manufacturers have been built up simply for the manufacture of textile machinery, and with that business taken away from them the shops would be practically valueless. Nearly all of them are away from large cities and if not used for the manufacture of textile machinery would probably be abandoned.

During the period of the present tariff in this country wages in this industry have increased from 15 to 20 per cent. As the cost of production in this industry is made up one-half of wages, an increase of wages of 20 per cent. amounts to an increase in cost of production of 10 per cent. During these years the rate of duty has remained unchanged, whereas, as just shown, the increase in cost of production of machinery due to wages alone amounts to at least 10 per cent., and adding the increase in cost of materials the total cost of production is increased probably at least 20 per cent. In England, on the other hand, the wages have decreased somewhat and the increase in cost of materials has not been nearly as great in comparison as it has been in the United States.

In spite of the present duty of 45 per cent. it has been possible for the English manufacturers to lay their goods down here as cheaply or cheaper than the American goods can be sold profitably here.

There have been no exports of American-made textile machinery except in isolated cases where the foreign manufacturer was anxious to try the higher-priced American machinery on account of certain special or patented features. There is absolutely no such thing as competition abroad between American-made machinery and English-

made machinery. This is not because of superior quality in the English machinery, but simply because the English manufacturers can afford to sell and do sell and make a profit at prices which would not repay the American cost.

Mr. Herrick submitted a number of tables comparing the wages in British and American textile machine shops and from which we take the following:

RATES OF WAGES PER HOUR.

	Machinists.	Blacksmiths.	Wood Workers.
Oldham, England	.153	.157	.175
United States	.305	.32	.351

The case for the importers for textile machinery was presented by Searle & Pillsbury, Boston, Mass., who represented Evan Arthur Leigh and certain other importers. Following are extracts:

It is necessary to deny that the cost of English plants "is probably not greater than 60 per cent. of the cost of the plants in America." There is not a single English or Continental machine shop of importance which is not situated in a large city where land and ground rents are extremely high. Methods employed by English machine shops necessitate far more expensive and valuable equipment than have been thus far adopted by any American shops that we know of. The building laws abroad are extremely strict and force the erection of superior buildings. Per contra, almost all the American shops are situated in small towns. We believe it can be shown that the total cost of the English shops is quite as great, if not greater, than that of the American.

Of the claim that the percentage of profit of the American manufacturers to business done is approximately 14 per cent. and the percentage of profit to capital invested is approximately 7 1/2 per cent., it is only necessary to say, as Mr. Carnegie has already testified before your committee, that "there are more ways of figuring costs than there are of skinning cats," and to remind you that present-day corporations have so many ways of concealing their earnings in maintenance and construction charges, etc., that it is well-nigh impossible for an outsider to arrive at the real percentage of profits made, and if the American Textile Machinery Combine is an exception in this respect, and if they realize only the profits mentioned under a tariff which protects their products (as we will show in this brief) to the extent of 62 per cent. to 66 1/2 per cent., then there is surely something wrong in their business methods. We are informed that more than one of the American Textile Machine companies have entirely renewed and remodeled their plants, under the present tariff, out of earnings.

We deny absolutely and categorically the assertion that the English manufacturers "can add the present duty to their cost of production and yet sell their machinery in this country at prices lower than the American cost and still make a profit." The facts are exactly opposite. Let us take for illustration the very example they use, i. e., the average sales of the three American shops, viz., $7,700,000 (although we deny emphatically their assertions as to the ratio between wages and cost of materials in the United States and in England), and we call your attention particularly to their figures and calculations. It will be noticed at once that they take into account only the items that would enter into the cost of producing such machines in the United States, although the law requires ad valorem duties to be paid, not upon the cost but upon the wholesale market price of the merchandise, packed ready for shipment, in the chief markets of the country from whence it is imported. That is to say, under the present tariff imported machinery pays duty at 45 per cent. ad valorem on the price foreign purchasers would have to pay for it packed in condition ready for shipment, which price consequently includes not only the cost of packing and the packing cases (which are ultimately thrown away or burned under the mill boilers), but also the manufacturers' profit.

Taking, then, Mr. Herrick's statement of the comparative cost of English labor and materials (the correctness of which we do not for a moment admit), let us see how the cost of English machinery laid down in Boston compares with the results obtained by him:

Set No. 1.

American manufacturers' figures of English cost		$3,518,125
7 1/2 per cent. English manufacturers' profit (American manufacturers admit making 14 per cent.)		263,859
	A	3,781,984
Packing charge, 7 1/2 per cent.		283,649
	B	4,065,633
Duty, 45 per cent.		1,829,534
		5,895,167
Delivery to English port, 2 1/2 per cent. on A	C	94,549
		5,989,716
4 per cent. on B and C for ocean freight and charges		166,407
Cost landed in the United States		6,155,123

These figures as to packing charges, land and ocean freights, etc., can be verified through the United States appraisers at Boston, New York, or Philadelphia, the only United States ports at which English machinery is imported. We have figured the packing charges at 7 1/2 per cent., although they range from 7 1/2 per cent. to 12 1/2 per cent., according to the class of machines.

Mr. Herrick claims that under the present rate of 45 per cent. English machinery can be landed here below the American cost of production. We show below, however, that a duty of 32 1/20 per cent. would put the imported machinery on the same cost basis (landed here) as the American, still using Mr. Herrick's figures of English cost.

Set No. 2.

Figures B, Set No. 1	$4,065,633
Duty 32 1/20 per cent.	1,303,035

2 1/2 per cent. (C, Set No. 1)	94,549
4 per cent. of B, C, Set No. 1	166,407
The exact American cost by their own showing	$5,629,624

But we challenge the claims both that English materials cost only 75 per cent. as much as the American and that English labor cost only 50 per cent., or less, of the American.

Our own information and belief (which is certainly entitled to as much credit as that of the American combination) is that wages have increased in England since 1903, and that at the present time, and for many years, wages in England are and have been approximately 66 2/3 per cent. of the American, and we hope and expect before the tariff is actually revised to produce authentic and indisputable evidence to that effect.

In the interest of the great American textile manufacturing industries, of the consumers of their products (the American people), and in our own, we ask that the rate of duty on imported machinery under the new tariff be reduced to at least 25 per cent. ad valorem, which rate will be amply sufficient to afford to American textile machinery manufacturers all the legitimate protection required.

A request for increased protection for the manufacture of card clothing was presented in a statement signed by George L. Hamilton, Howard Bros. Mfg. Co., Beckwith Card Co., American Card Clothing Co., Benjamin Booth & Co., Amsterdam Card Clothing Co., Leicester Card Cloth Co., Methuen Napper Co., Ashworth Bros., and the Davis & Furber Machine Co., and from which these extracts are taken:

The card clothing industry is engaged in the production of an article that does not enter into general consumption. The demand for it is consequently limited.

The manufacture of card clothing in the country is an industry that needs increased protection. First, because it pays to its employes wages 150 per cent. higher than the wages paid to workmen of the same class in foreign countries. The American manufacturer cannot, therefore, under present tariff conditions successfully compete with foreign manufacturers in the labor market; second, because, under the present tariff, in most cases, the duty on the materials entering into the construction of card clothing is greater proportionately than the duty on the manufactured article.

Paragraph 146 provides for card clothing manufactured from tempered steel wire, 45 cents per square foot.

In 1897 there were 1,600 card-setting machines in operation, while in 1906 and 1907 two good business years, there were only 1,039 such machines in operation. Likewise the amount of American-made card clothing used in this country has steadily decreased, while the amount of imported clothing has increased. Statistics show that the total sales of card clothing for the year ending June 30, 1906, were 1,313,685 square feet, of which 422,946 square feet were imported, and for the year ending June 30, 1907, were 1,399,054 square feet, of which 464,716 square feet were imported. It may be noted in this connection that one-third of the total amount sold in this country was imported.

This does not include the card clothing that has been imported with carding machinery since the decision rendered by the general appraisers Dec. 12, 1906, which was confirmed by the United States circuit court, district of Massachusetts, Dec. 31, 1907, and was acquiesced in by the Treasury Department Feb. 3, 1908. Since this ruling card clothing imported with carding machinery has paid an ad valorem duty of 45 per cent. under paragraph 193, which means that this card clothing only pays a duty of 25 cents per square foot on the lowest-priced clothing and a duty of 36 cents per square foot on the highest-priced card clothing.

Inasmuch as the card clothing manufacturers of the United States are at as great a disadvantage under the present tariff and are consequently gradually losing their business to the foreign makers, we would respectfully ask that the rate of duty assessed upon card clothing be as follows:

	Per sq. ft.
Card clothing manufactured from round, tempered, steel wire, unless otherwise provided for in this act	$0.50
Card clothing made of felt face, wool face of a rubber face cloth containing wool	.55
Card clothing manufactured with plate wire, brass wire, bronze wire, double convex wire, angular wire, sectoral wire, and all others not specially provided for in this act	.55
Card clothing of round iron wire	.20

Unattached card clothing, imported with machinery, shall be classified as card clothing and pay the rate of duty specified in this act. Or, in lieu of increasing the present rates on the manufactured product, that such a reduction be made in the present tariff on the materials from which card clothing is made as will enable the domestic manufacturers to compete successfully with their foreign rivals.

A statement in reply to this was submitted by Searle & Pillsbury for Evan Arthur Leigh, and which is in part as follows:

First. Let it be understood that if card clothing were not specially provided for in the tariff it would be dutiable under paragraph No. 193 of the present act as articles or wares in whole or in part of metal, at 45 per cent. ad valorem. As card clothing made of round iron wire and dutiable at 20 cents per square foot is not imported to any extent, that feature of the subject may be eliminated, and we shall consider only card clothing suitable at 45 per cent. per square foot, which is the rate paid on all imported clothing, except such as comes in as a part of the carding machine and pays, under the decisions of the courts, 45 per cent. ad valorem.

Since 1883 rates of duty on imported card clothing have been as follows, to wit:

1897. 146-card clothing manufactured from

tempered steel wire, 45 cents per square foot; all other, 20 cents per square foot.

1894. 132-card clothing manufactured from tempered steel wire, 45 cents per square foot; all other, 20 cents per square foot.

1890. 159-card clothing manufactured from tempered steel wire, 50 cents per square foot; all other, 25 cents per square foot.

1883. 411-card clothing, 25 cents per square foot, when manufactured from tempered steel wire, 45 cents per square foot.

Showing that for more than twenty-five years card clothing has been subjected to a duty higher than that upon other articles or wares manufactured in whole or in part of metal. That such rates are excessive is well known to all persons familiar with textile industries, and yet, after all these years of excessive protection, according to their own statements, fully 33 1/3 per cent. of all the card clothing used in American mills is imported from England. It is this excessive protection that has enabled the American manufacturers of card clothing, though still using their antiquated methods and machinery, to combine together and maintain their prices just enough below the prices at which foreign clothing can be sold here so as to force an inferior product upon the American mills in all cases where quality is not of first importance. Under the present rates the American manufacturers undersell the importers in all instances, and are continually accepting orders at a large percentage under importers' prices, and importers themselves, in a case where the American article would answer, have bought card clothing from one of the signers of the petition now before you asking for an increase in duty, at more than 10 per cent. below the cost of importing the same, allowing no profit whatever to the importer.

If, with 45 per cent. per square foot duty, the American manufacturers can secure two-thirds of the entire card-clothing business of the United States, would it be wise to increase the rate of duty and thereby cut off the importation of such merchandise, in this way reducing the Government's revenue, and, at the same time, forcing the American mill owners to a further use of an inferior article?

That the present rate of duty on card clothing is excessive we propose to show from the American manufacturers' own statement.

They say: "Since this ruling, card clothing imported with carding machinery has paid an ad valorem rate of duty of 45 per cent. under paragraph 193, which means that this card clothing only pays a duty of 25 cents per square foot on the lowest-priced card clothing and a duty of 36 cents per square foot on the highest-priced card clothing."

If this is true, then each 1 cent per square foot means 1/25th of 45 per cent., or 1 8/10 per cent. ad valorem, and 45 cents per square foot equals 45 times 1 8/10 per cent., or 81 per cent. ad valorem, on the lowest priced clothing, while each 1 cent per square foot means 1/36 of 45 per cent., or 1 1/4 per cent. ad valorem, and 45 cents per square foot equals 45 times 1 1/4, or 56 1/4 per cent. ad valorem on the highest-priced clothing. In other words, instead of being protected to the extent of 45 per cent. ad valorem, as other manufacturers of "articles or wares in whole or in part of metal" are, the manufacturers of card clothing are enjoying protection, under the present tariff, to the extent of from 56 1/4 per cent. on the highest-priced to 81 per cent. on the lowest-priced clothing.

Applying these simple calculations to the rates (55 cents per square foot) demanded in the coming revision of the tariff, we find that the infant industry is asking for protection to the extent of from 68 3/4 per cent. on the high-priced to 99 per cent. on the low-priced clothing.

There is no need of an extra paragraph or provision for card clothing imported with carding machines, as the question of duty upon such clothing is of no importance to the American manufacturer.

We can state without fear of contradiction that since the decisions referred to on page 2040 the total value of card clothing imported into this country with carding machines has amounted to less, and considerably less, than $5,000.

We beg further to call your attention to the fact that the manufacture of card clothing involves, proportionately, less manual labor than almost any known manufacturing industry in the world, and that the duty on card clothing only protects a very small number of laboring people, probably 200 to 300 persons in the whole United States, and, in order to do this, the American cotton spinners have to pay duties so enormous that we have no doubt it would provide a very handsome pension for every working man, woman, or child in the card clothing trade in the United States. At all events, the number of working people to be affected is too small to warrant an increase in protection, which is already absurdly excessive, and which to benefit them at all, must either be at the expense of the American cotton manufacturers or else at the expense of the Government's revenue.

For the reasons above set out we ask, in good faith, that in the new tariff the duty on card clothing be made the same rate ad valorem that is imposed upon other articles or wares in whole or in part of metal.

WOOL AND WOOL GOODS.

Interest in both the raw material and finished products of wool manufacturing has continued unabated and while no witnesses have appeared personally before the committee since our last report, the written statements on this branch of the textile industry have been both numerous and elaborate. A report that carpet wool was to be put on the free list reached the Navajo Indian Agency, Fort Defiance, Arizona, and led the superintendent, Peter Paquette, to write this letter to the Secretary of the Interior:

Information has reached this office, and from a source considered entirely reliable, that it is the intention of the Ways and Means Committee of the National House of Representatives, who have the matter of tariff revision under discussion, to place what is known as carpet wool on the free list. As this wool is the kind that the Indians of

the Southwest, and especially the Navajo tribe, grow, it will readily be seen that to place carpet wool on the free list would work a hardship on the Indians who depend on this product for a livelihood. Carpet wool now carries an import duty of 4 cents per pound, and is imported in great quantities from Asia.

I therefore respectfully request that your office take this matter up, and, if possible, prevent the placing of this item on the free list.

Prosser and Le Min, Sanderson, Tex., argued in support of the contention that the wool grower, as well as the manufacturer, is entitled to protection:

We beg to submit the following statement in regard to the capital invested necessary to produce wool, for the purpose of showing that for raising wool (our finished product) there is as much capital invested in the "plant" in proportion to the product as the manufacturer invests in his plant. Moreover, we took hold of a waterless desert that had never been used, and that had paid no lease and very little taxes to the State and can never be used but for raising live stock, so believe we are entitled to protection for our industry.

Capital invested in sheep ranch in Terrell County, 40 miles north-east of Rio Grande.

For 20,000 acres patented land, with improvements consisting of five 600-foot wells and reservoirs, buildings, shearing plant, corrals, etc.	$50,000
14,000 head merino sheep, with wagons, horses, etc., necessary to run same	50,000
Total Invested.	$100,000

Income.

From 112,000 pounds, at 14 cents on ranch,		$15,680
From 2,400 lambs, at $2.50		6,000
Profits on fat sheep shipped		1,000
Gross Income.		$22,680
Running expenses	$15,000	
Loss from wolves	1,000	16,000
Net Income.		$6,680

The enclosed statement shows a profit of about 6 1/2 per cent. This is for an average year. Sometimes we do better and sometimes not so well, depending chiefly on the rainfall and price of wool. When the Wilson bill passed wool dropped from 17 to 4 cents, and a big per cent. of us sheepmen of West Texas were ruined. After being out here twenty-five or thirty years and growing gray in this business, we are not fit for much else, so on the passage of the Dingley bill we took heart and went in again.

An interesting suggestion for remedying the inequalities resulting from a specific duty on grease wool was made in statements signed by the Springfield (Tenn.) Woolen Mills Co., the Rock Mfg. Co., Rockville, Conn., Cleveland (Tenn.) Woolen Mills, W. J. Dickey & Sons, Oella, Md., Converse, Stanton & Co., New York and Sidney Blumenthal & Co., New York, and from which this extract is taken:

While collecting a given number of cents per pound duty upon wool, under general classifications, may be very simple, this method is not only unscientific, but operates to the disadvantage of a number of American manufacturers less fortunate than their fellow-importers of sugar, lead ore, etc., in having to pay duty at the same rate, whether a wool shrinks 16 per cent. or 70 per cent. This inequality has been urged by various experts who have appeared before your honorable committee as a ground for the application to wool of an ad valorem rate or some other equitable basis of adjustment.

The obvious remedy would be the adoption of the scoured weight as the basis of duty, under such regulations as would fully protect the interests of the revenue and have been found to be practicable with regard to other articles. The details would of course have to be arranged with due consideration of the various points brought forward during the present hearings.

The estimated scoured yield being the basis on which wool is valued by prospective buyers and sellers, the clean pound would therefore be the logical standard of duty. The detailed methods now being elaborated by the National Bureau of Standards, Washington, and already in use at conditioning houses here and in Europe for moisture, scouring, and other tests of wool, tops, and yarns, would be equally applicable to such an adjustment of duties under Schedule K.

The use of shoddy was discussed by the Committee at the hearing at which U. S. Special Agent W. A. Graham Clark appeared:

The Chairman—Is shoddy a desirable thing, or not, in the manufacture of woolen goods?

Mr. Clark—I think it is very desirable. It ought to be sold as shoddy, however, and as such it is a very valuable addition to the clothing requirements of the world.

The Chairman—It saves the wool?

Mr. Clark—Yes, you might put it that way.

The Chairman—And the woolen rags that are obtained in this country are used in the shoddy mills in making shoddy?

Mr. Clark—Yes, sir.

The Chairman—So that a duty that prohibits the importation of rags and of shoddy deprives our manufacturers of a valuable raw material?

Mr. Clark—It means that we pay a higher price for shoddy cloths than the Englishman pays.

The Chairman—The shoddy makes cheaper goods of course.

Mr. Clark—Certainly; yes, sir.

The Chairman—Can you state whether it is economical for the consumer to buy shoddy goods at shoddy prices in comparison with good woolen goods at woolen goods prices; I mean woolen goods made from wool?

Mr. Clark—It would depend entirely on how it is made up, but if the shoddy is all good grade it is economical compared with the wool. Take tail-

or's clippings. When a tailor makes a suit of clothes and he shears off the scraps, that wool is just as good as the wool in the suit of clothes. If you tear it up a little so as to get it into its original condition for reworking, you will find that the fiber is injured somewhat, but not materially. You put that in a new suit of clothes and it is almost as good as the new wool, yet one is shoddy and one is wool.

The discussion of this phase of the question was marked by a noteworthy appeal by a manufacturer of worsted for the retention of the present duty on rags on the ground that increased imports would injure the American wool grower and increase the danger of contagious diseases. The letter, signed by Edward T. Steel & Co., Philadelphia, members of the American Association of Woolen and Worsted Manufacturers, is as follows:

I desire to hand you a communication in regard to the duty on rags, and to urge the retention of the present duty of 10 cents per pound.

To reduce the duty would be only an encouragement to increase the importation of an article of which the domestic supply has been proved ample since the present rates of duty were established.

Under a duty of 10 cents per pound the importation of rags has been slight, if any. By this means the danger of importing with the rags contagious diseases has been eliminated. This is a very possible result from the fact that it is not a universal custom to disinfect these rags at the place of exportation and they are brought into this country from unknown sources of diseases and contamination, and a further reason for continuing the present practically prohibitive duties on rags is that when converted into shoddy every pound displaces up to 3 pounds of scoured wool, thus nullifying to our wool growers that much to their advantage in the duty on foreign wools, and also would check the expansion of wool growing in this country.

A statement advocating a reduction of the duty on camel hair press cloth such as is used in cotton seed oil mills, was made in person by Col. J. W. Allison, Ennis, Texas, and in which he complained of the exactions of the American manufacturers. He said:

An important item in the cost of manufacture of our product is the cloth from which is made the wrapper or envelopes which are used to contain the cooked seed while being subjected to hydraulic pressure for the extraction of the oil. These envelopes are called press cloths and are made from camel hair, it having been found, after repeated experiments and long experience, that no other material having necessary porosity and pliability will stand the great pressure to which they are necessarily subjected.

Repeated efforts have been made to find some other and less costly material for this purpose, and cotton, linen, wool, woven wire, perforated metals, and several various fibers have been tried, but all of these have been found unfit for the work and have been abandoned.

This press cloth is made in this country, principally, if not entirely, by four or five factories, which, if not under one ownership or control or in combination with each other, as is commonly charged, at least maintain an exceedingly firm and entirely uniform price in its sale; this price having varied but very slightly in years and now being about 62 cents per pound.

Press cloth is largely made in England and in other foreign countries, but its importation into this country is entirely prohibited by the high tariff imposed, and it is the consideration of this tariff, as now charged, that we would ask of the committee. For it is really a clarification or interpretation of the present tariff we are asking rather than its reduction or entire abolition.

It should be noticed, too, that the tariff under its present interpretation is absolutely prohibitive. No importations are made under it, and it is consequently productive of no revenue.

Mr. Randell—Why do you say that it is in the hands of a monopoly? What I mean by "monopoly" is an institution owned by either one person or a combination of persons, and which controls the prie.

Col. Allison—I am not in a position to say that this is a combination. I only speak from general report in regard to that.

Mr. Randell—Why do you think it is? You are in the business and have to buy the goods.

Col. Allison—I think so because there are only four factories that I know of in active operation. They do not interfere with each other's prices in any sort of way, even, as has been tried, when a number of mills have made a combination of their press-cloth purchases. An ordinary interior mill will use three or four thousand dollars' worth of press cloth a year, and I have known as many as 25 or 30 of these mills to bunch their purchases, trying to get a concession in the price, offering to contract for their orders, provided some concession should be made; that is, trying to pit one manufacturer against the other. We have always found that each manufacturer was thoroughly informed of the offers being made to the other, and that there was no such thing as stirring the prices.

Mr. Randell—Some of these factories are smaller than one of the main factories, and I suppose you were trying to get orders from the smaller factories, so as to give them the benefit of competition. Have you tried to do that?

Col. Allison—Frequently. We have tried to get one against the other, irrespective of their size. But we have found that the price has been absolutely the same, 62 cents a pound, not more or less. It is sold absolutely for cash, or drafts against bill of lading, and no sort of accommodation is extended to the buyer. It is absolutely at the same price.

The Scandanavia Belting Co. filed a written request for a reduction of the duty on camel hair press cloth, from which this extract is taken:

Camel hair press cloth should be classified under paragraph 431 the same as cattle hair press cloth. Our objections are contained in the fact that these

goods, which are coarse goods and used only in manufacturing, should be classified as dress goods and put at such a high duty.

The duty on camel hair press cloth and camel hair belting is absolutely prohibitive, and although these are things which are needed in the country they cannot be imported. Cheaper goods sold as camel hair press cloth and camel hair belting are, we understand, sold under the name of camel hair, although not composed of camel hair, but of cattle hair, and come in at 20 cents per square yard.

What manufacturers need and desire they cannot obtain under these circumstances, nor does the government obtain any revenue whatsoever from true camel hair belting or true camel hair press cloth, because these goods cannot be imported on account of the prohibitive duty.

The manufacturers of camel hair press cloth presented their side of the case in a sworn statement signed by Chas. E. Perkins, treasurer of the J. T. Perkins Co., Brooklyn, N. Y., in part as follows:

If Col. Allison's figures are correct as to the amount of duty of 53 cents per pound assessed on the cloth, and taking his figures of 37 cents for the cloth, though the last price we heard of in Liverpool some time ago was 43 cents, we make a cost, exclusive of freight, amounting to 90 cents per pound. If there were a combination of press cloth manufacturers and they wished to get all they could for their cloth, they would charge 85 cents a pound for it, which would be just below the cost of importing from the other side. But we furnish them, notwithstanding the assertion of Col. Allison, a better cloth than they can obtain in England or on the Continent, as we can show you evidence of if necessary, and we charge only 60 cents for it.

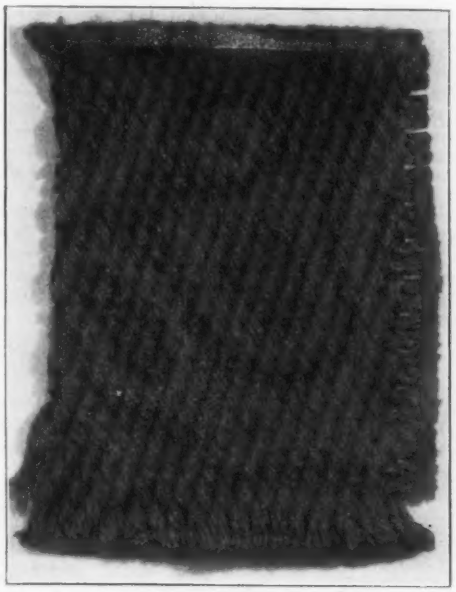
The assertion made by Col. Allison that the government is not receiving the proper amount of revenue from the importation of this article, it seems to me, are very misleading. As the importation of camel hair is made at the different ports of the United States under the classification of wool of the third class, it is not easy to ascertain the exact number of pounds imported; but from what we know of the business we feel positive that the amount is between 4,000,000 to 5,000,000 pounds a year. A year and a half ago almost all then coming in paid the government 7 cents a pound. The past year, as the price has not been so high abroad, a portion has come in at 4 cents a pound. The government's income per year, therefore, has been between $250,000 and $300,000 in consequence of the article being manufactured here.

The duty on press cloth at the rate desired by Col. Allison would in some cases amount to only 2 1/2 cents per pound, and at the outside figures would come to $80,000 per annum, against $250,000 to $300,000.

We trust that you will not throw out of employment the considerable number of people engaged in this industry, nor reduce the revenue millions of dollars, which will be the result if a cloth made of this material is allowed to come in practically free.

Having declared under oath the above statement and making the positive assertion that there is no monopoly in our business, we desire to call your attention to what Col. Allison stated before your committee, that he represented a combination of 800 corporations or mills and that the manufacturers of press cloth shall have honorabe and fair treatment from your committee.

Camel hair press cloth is specially constructed to suit the uses to which it is ap-



plied. As the textile trade is not generally familiar with it we obtained a sample of the imported goods, shown in the accompanying illustration, and have analyzed it with the following results:

Weight, 30.1 ozs. per yard, 12 inches wide.

Warp, 58 ends per inch, 5-ply No. 4 1/2 yarn.

Filling, 6 1/4 ends per inch, 15-ply No. 4 1/4 yarn.

Weave, 4-leaf twill to right, two thread in a heddle.

The yarn counts are given by the worsted system of 560 yards per pound. This sample is made of camel hair, and is sold abroad for 40 cents a pound.

COMPENSATORY DUTIES.

A long statement on compensatory duties on wool goods was filed by the tariff committee of the National Association of Wool Manufacturers, the signers being William Whitman, Frederick S. Clark, Walter Erben, Louis B. Goodall, Edwin Farnum Greene, Joseph R. Grundy, John Hopewell, George E. Kunhardt, J. R. MacColl, Francis T. Maxwell, J. F. Maynard, Thomas Oakes and Winthrop L. Marvin. It began with a brief historical sketch of the compensatory

duty, the principle of which was established in the Morrill tariff of 1861. The committee thus referred to the adoption of the 4 to 1 ratio:

There was no guesswork in the fixing of those early compensatory duties. Practical manufacturers, when questioned by Chairman Morrill, testified that 4 pounds of the Mestiza wool, the chief foreign wool then competing with American fine wools, were required to make a pound of finished cloth. This statement was investigated and confirmed by the Committee on Ways and Means in the tariff revisions of 1864 and 1867. The executive committee of the National Association of Wool Manufacturers addressed the United States Revenue Commission on this point in May, 1866, citing as an example certain authoritative facts and figures obtained from the books of the Proctorsville Woolen Mill, in the State of Vermont.

This careful statement exactly confirmed the testimony of the manufacturers in general that 4 pounds of wool were required to make a single pound of cloth.

Reference is made to the attack on the 4 to 1 ratio in 1882:

In the course of the hearings before the tariff commission of 1882 this compensatory duty was attacked, as it is now being attacked, by interests hostile to American wool manufacturing, and it was asserted then, as it is being asserted now, that 4 pounds of unwashed wool were not required to make a pound of finished cloth. Again, a careful inquiry was made into the actual practice of manufacturers. The following significant statements were laid before the tariff commission:

Mr. Robert Middleton, agent of the Globe Woolen Mills at Utica, N. Y., mills of very high celebrity, states that 4 pounds of fine Australian unwashed wool will yield but 15 ounces of fine finished cloth, such as that company is making.

Mr. David Ramsden, superintendent of the Oswego Falls Mfg. Co., states that 4 pounds of unwashed Australian wool will yield only 15 ounces of the goods that that company manufactures.

A mass of evidence was presented to support the contention that the 4 to 1 ratio is correct, this including statements by Henry F. Coe, treasurer of the Washington Mills in 1882, a consular report from Elboeuf, France, in 1883, a report of mill tests by T. Quincy Browne, treasurer of the Assabet Mills in 1883, by William D. Hartshorne, superintendent of the Arlington Mills in 1890, by Joseph P. Truitt, of Philadelphia, and by John W. Nary, agent of the Fulton Woolen Mills, Oswego, N. Y., in 1896. In addition there were a number of statements of recent date, from which we make these extracts:

John G. Wright, wool dealer, Boston—Australian merino wools vary in condition. I should say a fair statement would be that shrinkages run from 47 per cent. for the choicest wools of the western district of Victoria and vicinity to 80 per cent. for some of the wools grown in west Australia. Probably about 80 per cent. of the merino goods grown in Australia will shrink from 55 to 80 per cent.

In Buenos Aires and Montevideo merino wools shrink from 55 to 75 per cent. depending upon the locality in which they are grown. In South Africa wools, commercially called "Cape of Good Hope," vary in shrinkage from 55 to 75 per cent. The great bulk of the wools, most of which are merino in that section, shrink from 60 to 75 per cent. Merino wools grown in Russia, on the borders of the Black Sea, usually called "Odessa wools," shrink from 65 to 80 per cent. The bulk of merino wools grown in Spain and France, Germany and Australia shrink, I believe, from 65 to 75 per cent. Nearly all of these are consumed in the countries of their growth.

Farnsworth, Thayer & Stevenson, wool importers, Boston—As importers into this country, our attention is confined almost entirely to the lighter shrinking wools, and we have not given as much attention to the heavier wools in consequence. These last in many cases form the great bulk of the product and are bought by foreigners below the parity of the wools we buy, because they are not subjected to the American competition. In our judgment the range of shrinkages given as follows are very nearly, if not absolutely correct: Australian merinos, from 45 to 72 per cent.; South American merinos, from 50 to 70 per cent.; from the Cape, 55 to 72 per cent.

Next came the annual statement of the wool product of the United States as estimated by the National Association of Wool Manufacturers by States, with an estimate that the average shrinkage in scouring American wool is 60 1/2 per cent. This was followed by reports from various manufacturers on the shrinkage in manufacturing processes subsequent to scouring, and which the statement says is "the largest amount of testimony from practical manufacturers ever procured and given to Congress." We regret that lack of space prevents us from giving the reports here in full, but the following extracts will give an idea of the trend of the statements:

Thomas Oakes & Co., of Bloomfield, N. J., submit five samples of carded woolen cloth in which from 3 pounds to 4.16 pounds of greasy wool are required to make 1 pound of finished cloth, and also four samples of worsteds, in which from 3.7 to 4 pounds of greasy wool are required to make a pound of finished cloth.

The Talbot Mills, of North Billerica, Mass., submit two samples of carded woolen cloth, and state that it requires 3.52 pounds of greasy wool to make a pound of finished cloth.

S. Slater & Sons, of Webster, Mass., submit two samples of black broadcloth, in one of which 3.69 pounds of greasy wool are required to make 1 pound of finished cloth, and in the other 4.64 pounds of greasy wool are required to make 1 pound of finished cloth.

M. T. Stevens & Sons Co., of North Andover, Mass., submit three samples of dress goods and three of broadcloths, in which from 3.34 to 4.03 pounds of greasy wool are required to produce 1 pound of finished cloth.

The Globe Woolen Co., of Utica, N. Y., submits samples and states that 3 pounds, 1 ounce, of greasy wool are required to make 1 pound of carded woolen cloth, and that 2 pounds, 9 ounces, and 2 pounds, 15 ounces, of greasy wool are required to make 1 pound of worsted cloth, according to the samples presented.

The Forstmann & Huffmann Co., of Passaic, N. J., state that 100 pounds of greasy wool will yield from 24 to 34 pounds of finished cloth, according to samples submitted by the company.

A statement from Harry Hartley & Co., top manufacturers of Boston, is submitted, showing the amount of top procured from various wools grown in the United States. This shows that 100 pounds of fine merino territory wool yields 21.73 pounds of tops; 100 pounds of fine medium territory wool yields 24.45 pounds of tops; 100 pounds of medium, half-blood territory wool yields 28.80 pounds of tops; 100 pounds of fine unwashed Ohio and Michigan wool yields 26.47 pounds of tops; 100 pounds of average fine Texas wool yields 24.45 pounds of tops; 100 pounds of twelve months' Texas wool, long staple, yields 27.90 pounds of tops; and 100 pounds of quarter-blood territory wool yields 37.30 pounds of tops. This statement further confirms the soundness of the proposition that 4 pounds of wool are on the average required to produce a pound of finished cloth. It should be remembered that from the top there is a further considerable shrinkage in the process of manufacturing.

The Talbot Mills, of North Billerica, Mass., state that on the basis of their three samples submitted it requires 1 1/3 pounds of scoured wool to produce 1 pound of cloth.

The Botany Worsted Mills, of Passaic, N. J., whose managers have important experience on both sides of the ocean, state that the loss between the top and finished dress goods approximates from 15 to 20 per cent., and that 100 pounds of scoured wool produce about 60 to 65 per cent. of finished cloth, and give other important particulars. Four samples of dress goods are submitted.

The Hockanum Co., of Rockville, Conn., submits samples of fine worsteds made from Australian yarn, and states that 100 pounds of yarn in the gray produces 81.2 pounds of finished cloth.

The Globe Woolen Co., of Utica, N. Y., submits samples of carded woolen and worsted cloth, and states that 1 pound of scoured wool will yield 11.25 ounces of woolen cloth, and that 1 pound of scoured wool will yield in one sample 10.41 ounces, and in another 11.40 ounces of worsted cloth.

George E. Kunhardt, of Lawrence, Mass., submits eight samples of wools, worsteds and serges, and states that in one fabric 1 pound of scoured wool yields 0.78 pound of finished cloth, and in the other 1 pound of scoured wool yields 0.83 pounds of finished cloth.

The Rock Mfg. Co., of Rockville, Conn., submits a sample of uniform cloth, and states that 4,000 pounds of fine domestic wool in the grease will yield 1,280 pounds of clean white wool, and that this wool will yield 921.60 pounds of finished cloth.

The Waterloo Woolen Mfg. Co. submits two samples of blue broadcloth, and states that the quantity of scoured wool in each pound of cloth is approximately 1 1/2 pounds.

Thomas Oakes & Co., of Bloomfield, N. J., state that from 1.38 to 1.44 pounds of scoured wool are required to produce a pound of finished cloth, according to samples submitted by them.

M. T. Stevens & Sons Co., of North Andover, Mass., submit samples of dress goods and broadcloth, and state that from 1.30 to 1.40 pounds of scoured wool are required to produce 1 pound of cloth.

The only reference to mixed goods in the statement of the National Association of Wool Manufacturers is found in this quotation from a speech by Senator Aldrich in the Senate in 1890:

They have selected certain kinds of wool, and declared that in these particular instances the proportion of shrinkage and waste is only as 2 or 3 pounds of wool to 1 of cloth. I grant there are such instances; but, as it is the weakest link in the chain or the lowest point in the levee that determines efficiency, so we are bound to take the highest-shrinkage wools accessible to foreigners and to calculate the compensatory duty on the basis of these. If our manufacturers are excluded from the use of this class of wools, their competitors do use them, and it is against these that the equalization of conditions is to be effected.

Again, it has been argued that the formula is wrong because certain fabrics are produced in which 4 pounds of wool, even of this high-shrinking quality, are not required to manufacture a pound of goods, while the compensatory duty is fixed at four times the wool duty. Goods woven on cotton warps or containing some mixture of shoddy are cited. I grant the facts in this instance also. But we must, as I have already shown, arrange the compensation on the basis of the best cloths; otherwise we should determine, by our legislation, that the manufacture in this country shall be confined to the lower grades of goods. That would be to affix the brand of permanent inferiority upon our woolen manufacturers. Nor is it possible in a tariff bill to so adjust a system of compensatory duties that it shall exactly fit the amount of wool consumed in an almost infinite variety of fabrics.

The statement by the committee of the National Association of Wool Manufacturers concludes with the following reference to the 4 to 1 ratio:

These exact statements, drawn from the actual business experience of representative importers of wool and manufacturers of woolen and worsted fabrics, are strong cumulative testimony that the standard of 4 pounds of greasy wool to 1 pound of finished cloth, the long-recognized basis of the compensatory duty, is a just standard, and that it ought to be embodied in the wool and woolen schedule of the tariff law which the Committee on Ways and Means is now considering. It is not denied that there are wools less than 4 pounds of which will produce a pound of cloth. Those hostile interests which attack our compensatory duty as a part of the protective system are in the habit of selecting such wools, as has been done by certain English manufacturers of Bradford, in a brief sub-

mitted to your committee by their representatives, F. Butterfield & Co., of New York. But, on the other hand, there are wools in constant use in this country, of both foreign and domestic production, more than 4 pounds of which are required to produce a pound of finished cloth.

Another objection that may be urged to accepting the proportion of 4 pounds of wool to 1 pound of cloth, and allowing a compensatory duty on this basis, is that the great shrinkage in the wool is not always fully lost—as in the case of noils, for instance. But the manifest reply to this, which has been present before, and is now emphasized again, is that though these noils have a value, that value is very much less than the foreign or original cost of the wool exclusive of the duty. Thus it is plain that the manufacturer, who pays the duty on the wool and noils included in it, does not recover the duty paid upon the noils when he sells them. Therefore the value of the noils can rightfully be eliminated from the calculation.

What the tariff makers have sought in past years is to fix a fair average standard, sufficient under all normal circumstances to compensate American wool manufacturers for the relatively high rates of duty which they are required to pay upon their raw material. This standard of 4 pounds of greasy wool to 1 pound of cloth, though often assailed by rival foreign manufacturing interests and their representatives in the United States, has stood the test of forty years of critical examination, and we urge you respectfully that it once more be adopted by your committee in the preparation of the new tariff law.

A statement was submitted to the Committee on Ways and Means by Edward Moir, Marcellus, N. Y., in reply to a letter to the Committee from William Whitman, Boston, Mass. Extracts from the latter appeared in our last issue. Mr. Moir said:

The woolen industry represents a good many millions of dollars invested, and has been for many years one of the leading industries of the country. For many years back failures in this line have been numerous, and many woolen mills are closed, and many others only partially employed at the present time.

I take it your committee is desirous of doing the fair thing in the new tariff schedule with all branches of the woolen industry, and, as already stated to you, it appears to me and to many woolen manufacturers, that the worsted branch of the industry has been receiving much favoritism under schedule K.

I fully understand that the depression in the woolen industry is due, to some extent, to the prevailing fashion for worsted goods, nevertheless, I am fully satisfied that, if the wool duties were collected in an equitable form, and the by-products of the worsted business, which become the raw material of many woolen manufacturers, were made dutiable at a reasonable rate, the depression that now exists will be very much lessened.

Mr. Whitman refers to my second special point and says that the annual importations of washed fleeces paying 12 cents per pound duty in place of 24 cents per pound, only average the last five years, between 15,000,000 and 16,000,000 pounds. In clean pounds this figures about 20 per cent. of the total clean pounds of classes one and two, besides, as very few mills use this washed fleece wool, the saving of duty of $1,800,000 per annum, divided up among the dozen large concerns, such as the Arlington Mills and a few comparatively small ones, is not to be sneezed at. Mr. Whitman might have said the use of these wools is limited to a few mills, of which the Arlington is one. The general public would then see his object in keeping this discrimination clause in the reconstructed wool schedule. Another way of putting this would be to say that the mills which use these fleece washed wools, paying but 12 cents per pound, are put in a position to crowd the price on the finished article down, in competition with the woolen mills product. The specific form of duty upon the fine wools of heavy shrink closes this avenue for their use.

The statement is also made by Mr. Whitman that putting these washed wools into the double duty would make the duty prohibitive. In making this statement he forgot for the moment that many wools and by-products of worsted manufacturers, suitable for woolen manufacture, are, by the Dingley bill, absolutely prohibited. The prohibitive duty on by-products benefits the worsted manufacturer in the price he gets for these wastes.

It is this discrimination in favor of the worsted as against the woolen, that has made bankrupt so many woolen mills, and which is adding so much to the profit of certain factors engaged in the worsted branch of the industry.

Mr. Whitman says that the wool growers would never consent to ad valorem duties on wool, and further that it was utterly beyond human ingenuity to devise a satisfactory system of a compensatory duty upon the basis of ad valorem wool duties. Regarding the wool growers, I do not believe that they are so hidebound as Mr. Whitman would have us believe.

As to the compensatory assertion, to say it was utterly beyond human ingenuity to devise a satisfactory system of compensatory duties if built upon a basis of ad valorem duties on raw material, is simply amazing, as I hold exactly the opposite.

Your committee has no doubt seen the article in the Textile World Record for January this year, which gives a fair table of the compensatory and protective duties on goods. It covers the ground fully and should form part of the hearings on this schedule if not so already.

We have read "All men are created free and equal." It is not much use being so created on the part of some of us, seeing that Congress steps in and imposes unequal conditions, so much so that many mills by reason of inequalities of the tariff on raw material are driven into bankruptcy.

I hope your committee will see that what I ask for myself and other woolen manufacturers is to have exact justice meted out to all branches of the textile industry. This we have a right to demand, and your committee should see we are not offered less.

The following letter was sent to the Committee on Ways and Means by Arthur Wheelock, treasurer of the Stanley Woolen Co., Uxbridge, Mass., and who was agent of

the Hecla Mill, where the 46 month test of shrinkage in woolen manufacturing, the results of which are given in this issue, was made:

Uxbridge, Mass., Jan. 29, 1909.

Hon. Sereno E. Payne, Chairman of the House Committee on Ways and Means, Washington, D. C.

Dear Sir: In view of the importance of the relation of schedule K on the manufacturing of carded woolen cloth, I take the liberty of sending to you the forty-six months' test of the shrinkage in manufacturing carded woolen cloth at one of our mills.

At that time we were making fine all wool cassimeres and cheviots for men's wear. Hon. S. M. Wheelock was treasurer, Samuel S. Dale, superintendent at the mill; my duties as agent were to buy the wool and have charge of the manufacturing and marketing of the cloth.

The lots of wool mentioned in the enclosed statement were purchased of leading Boston wool houses. You will please notice they include the fine heavy shrinkage wools from Eastern Oregon, California and Texas, shrinking from 62% to 76% and the light 3/8 wools from East India and the States, shrinking from 16% to 47%. You will also notice it took but 2 3/8 lbs. of the 3/8 shrinking 35% to make a pound of cloth, whereas it required 6 3/8 lbs. of the fine Texas wool shrinking 76% to make a pound of cloth.

By this long test made for our own information at that time, you can see the great inequality of the specific duty of 11 cents per pound on wools shrinking from 25% to 76%, and the burden it puts on the carded woolen manufacturers, who need to use the fine but necessarily heavy shrinking wools.

If an ad valorem duty is placed on wool, the carded woolen cloth manufacturer would then be on an equality with the worsted cloth manufacturer in the cost of the raw stock. Then this large and prosperous industry of fifteen or twenty years ago would not be on the verge of extinction as it is now.

It may be of interest to you to know that this mill in which the cloth was made for the uniforms worn by Gen. Harrison's regiment at his inauguration was closed as a cloth mill in 1905.

Many more woolen mills there are that have had to close under our present unequal duty or have substituted a large per cent. of cotton for wool.

Yours respectfully,

Arthur Wheelock.

MEETING OF THE CARDED WOOLEN MANUFACTURERS.

At this point in our review of the statements filed before the Committee on Ways and Means we will give attention to the meeting of the carded woolen manufacturers held at Boston on Jan. 26. The call for this meeting, signed by Robert Bleakie, Hyde Park, Mass.; George F. Singleton, Franklin, Mass.; Henry A. Francis, Pittsfield, Mass.; James & E. H. Wilson, Pittsfield, Mass.; Gordon Dobson, Pittsfield, Me.; William Park, Stafford Springs, Conn., and Edward Moir, Marcellus, N. Y., was as follows:

Boston, Mass., Jan. 15, 1909.

Dear Sir: You are urgently requested to attend a meeting of all interested in the woolen industry, to be held at the Parker House, Boston, Mass., on the 26th instant at twelve o'clock, for the purpose of discussing the duty on raw materials, and making such recommendations as may be decided on by the meeting, to the Ways and Means Committee at Washington.

The duty on wool and its by-products we consider very unfair to the woolen manufacturer in its mode of application, and we believe the only fair and scientific way of collecting the duty upon wool is by the ad valorem system, so that all wools will be open to the woolen on exactly the same basis as to the worsted manufacturer.

About seventy-five representatives of the carded woolen trade responded and Hon. W. D. Haines, of Waterville, Me., was chosen to preside. Addresses were made by Mr. Haines, Mr. Moir and Mr. Bleakie, in which they stated the objects of the meeting and the reasons for demanding a change from a specific to an ad valorem basis for the tariff on wool. Their position, briefly stated is as follows: The specific duty on grease wool amounts to much less per clean pound of light shrinking wools than per clean pound of heavy shrinking wools. As a result, the worsted mills, which use the light shrinking wools, can import wool at a comparatively low duty, while the carded woolen mills are unable to import wool for their uses because the duty is so high as to be prohibitory. Moreover the duty on noils and waste, the by-products of the worsted mills, is prohibitory and as a result the carded woolen mills, which are consumers of this material, are compelled to buy it at high prices.

The speakers considered that the only remedies for this injustice were to base a specific duty on the clean pound of wool or to make the tariff ad valorem. The first remedy was considered impracticable, and so they demanded an ad valorem duty on wool. While the speakers were thoroughly in earnest, as men whose business interests were at stake would naturally be, yet they spoke calmly and with the confidence that those who now are opposed to them would on careful consideration be compelled to

agree with them because of the justice of their position.

An interesting diversion was made by William White, a wool grower of Las Vegas, New Mexico, and well known to the textile trade, as he was formerly a textile machine builder at Nashua, N. H. Mr. White stated clearly the necessity of protection to the wool grower, and created a very favorable impression by his fairness and by not antagonizing the ad valorem proposition in any way. The carded woolen manufacturers at the meeting made it very plain that the wool growers had nothing to fear from them. They emphasized the fact that they made no request or suggestion for a reduction of the duty on wool. They said in effect: "Give us an ad valorem duty on wool, which will bear equally on all branches of the manufacturing trade, and we will be content to let the wool growers and Congress decide on what the ad valorem rate shall be.

After this side of the case had been presented the chairman called upon Frederick S. Clark, who, as a representative of the National Association of Wool Manufacturers, presented the other side. He argued that an ad valorem duty on wool was impossible because the wool growers would not consent to it, and that the growers would be able to defeat the ad valorem proposition by reason of the power that they wielded in Congress, particularly in the Senate. As far as the merits of the question was concerned there was evidently slight difference of opinion between Mr. Clark on one side and those controlling the Boston meeting on the other. The disagreement was over the political practicability of the ad valorem duty. In reply to Mr. Clark, Messrs. Moir and Bleakie said that they could not believe their request would be refused; that they had too much faith in the spirit of fair play among the American people to accept the prediction that so reasonable a demand would be denied. A conciliatory letter from William Whitman, president of the National Association of Wool Manufacturers, was read at the meeting, in which he gave an account of the work of that association in presenting the case for the wool manufacturing industry before the Committee on Ways and Means, closing with this suggestion:

> It has been our unvarying purpose to consider the interests and safeguard the welfare of every department of the wool manufacturing industry in every practicable way. If we have not sought certain objects which are desired by some manufacturers, it was because, on long and careful consideraaretion, we believed that they were impracticable. We are stating this to you with the utmost frankness, recognizing that you have a perfect right to be of another mind, but desiring that you should understand our own position.
>
> All of us of the manufacturing industry ought to stand united. There is no tariff schedule so complex, so difficult to comprehend as our own Schedule K, relative to wool and woolens. A substantial agreement among us as to what we wish in tariff revision will very greatly facilitate that work of revision, while a disagreement will almost certainly bewilder the Committee on Ways and Means, hamper its labors, and produce a result injurious to all concerned.
>
> We would, therefore, urge very earnestly that before you take any final action as to the presentation of definite requests in Washington, you appoint a committee to confer with the Tariff Committee of this Association, and to see, after a full and frank discussion, if there is any real ground for difference among us and, if so, whether some com mon understanding may not be reached. I regard this as of vital importance to the proper protection of our wool manufacturing industry in the new law which the Committee on Ways and Means is now prepa:ing.

Several of the speakers at the Boston meeting spoke of the desirability of forming an association to represent the interests of the carded woolen industry, and it was evident that this suggestion met with much approval. It was finally decided, however, that action in regard to a new organization should be deferred until after a conference had been held with the National Association of Wool Manufacturers. If it turned out that the National Association of Wool Manufacturers would not agree to the position taken by the carded woolen manufacturers, then the formation of a new association would be taken up. After the discussion the meeting authorized the chairman to appoint a committee of five to confer with a committee from the National Association of Wool Manufacturers, and then if necessary to file a statement with the Committee on Ways and Means and issue a call for another meeting to deal with the question of a new association.

SEASONABLE FABRICS.

DRESS GOODS.

The dress goods market has shown considerable activity during the past few weeks. Many of the buyers who have visited the market placed most of their spring orders, while others had fill-in orders on some of the later spring colors. After summing up their spring business, the manufacturers feel well satisfied and are looking forward to a large re-order trade, as the retailers have good, clean stocks and will naturally sell out the desirable fabrics very rapidly.

Light weight plain weaves satin faced fabrics in the new spring shades of amethyst, castors, old rose, ocean green, with various browns, reds and blues are favored by the trade for early shipments in fabrics that cost from 62 1/2 cents to $1.25 a yard. Broadcloths continue to be in demand, but have given way to some extent to the more seasonable fabrics, such as prunellas, henriettas, etc.

Popular priced piece dyed fancies ranging from 65 to 90 cents a yard are selling well in plain and fancy striped effects. Cheveron striped worsteds are very strong. Fig. 1 shows a neat stripe 54 inches wide from Franz Merz at $1.12 1/2 a yard. Fig. 2 is a neat stripe from F. A. Bochmann & Co.'s collection, 54 inches at $1.25 a yard.

Mohairs and sicilians are gaining favor in the market. The manufacturers look for a good season in this class of merchandise, both in the plain and fancy weaves.

Several of the domestic manufacturers have opened up their lines for next fall. While there is some question as to colors, blacks will be well represented, with broadcloths as the leader in plain cloths. Stripe effects will again be good sellers in the cheveron and hair line styles.

SILKS.

That the coming season will be a banner silk season, both for the manufacturer and consumer is evident at this early date. The demand for all grades of silk fabrics has surpassed all the early estimates made by the silk merchants.

Manufacturers of the desirable spring fabrics such as messaline, rough pongees and foulards are sold up four to six weeks. With the present demand and the increasing popularity of silks, the desirable spring shades will be scarce during the entire season.

The demand for messalines in the new spring shades of old rose, stone grey and mulberry has been one of the features of the trade. The retail trade is using these messalines both in the 27 and 36 inch widths.

As the season progresses the vogue on

FIG. 1.

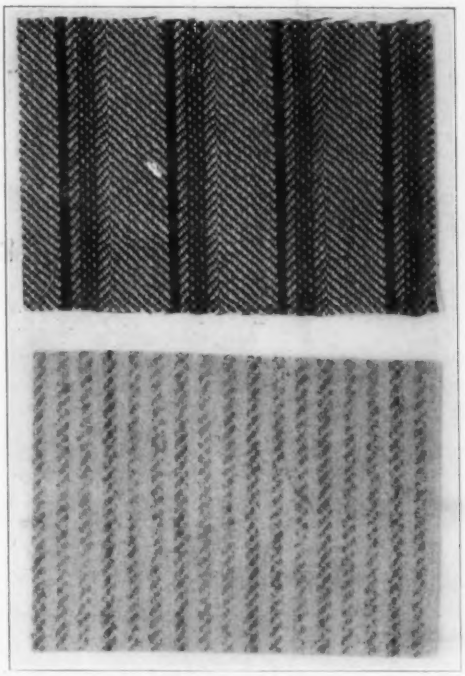


FIG. 2.

rough pongees has increased. Like all other silks these pongees are scarce in the popular spring shades. The trade is using rough pongees in several grades from 37 1/2 to 95 cents a yard. Valentine & Bentley are showing their 24 inch "Shedwater" pongee at 70 cents. This cloth meets with little competition as yet, and undoubtedly will be a big attraction this season.

The trend toward satins and satin faced silks has increased the demand for foulards to such an extent that these goods are considered the most popular silk for spring. The trade is selecting foulards in small, neat designs with the ground work predominat-

ing so as to get the full effect of the new shades. Fig. 3 shows a neat design from Arnold Constable & Co. at 57 1/2 cents a yard, 23 inches wide. Fig. 4 shows a broken stripe from Chas. Schoolhouse at 57 1/2 cents a yard, 24 inches.

The trade is beginning to order black and plain colored taffetas. These silks were slow for the past few months, but are gaining favor as the season progresses and will be in demand in the near future.

FIG. 3.

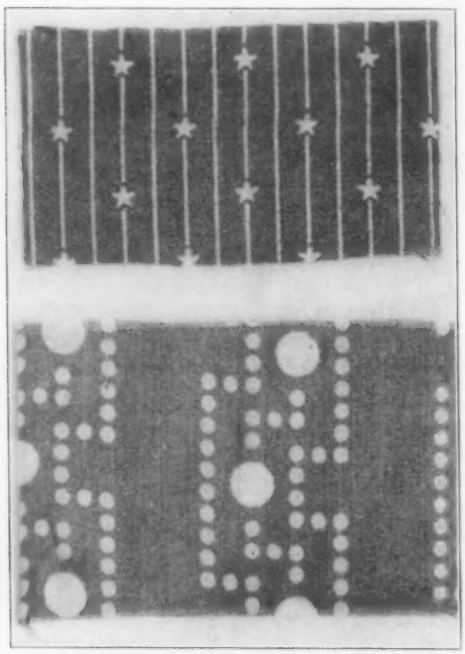


FIG. 4.

COTTONS.

The demand for staple domestic cottons has been one of the features of the cotton goods market during the past month. Orders are being placed in much larger quantities than earlier in the season.

Generally speaking the market is in good condition, stocks are clean, prompt deliveries are being made and prices are firm with no changes in prospect. With these conditions prevailing the buyers are placing their orders with the feeling that a steady market will exist during the coming season.

The manufacturers of several brands of wide sheetings have advanced their lines about 5 per cent. These advances have also affected the price on sheets and pillow cases about 5 per cent. Advances on these lines did not surprise the trade, as several of the popular brands are sold ahead from 4 to 6 weeks, especially in the popular sizes.

An advance of 1/4 of a cent a yard has been made on standard prints. The scarcity of grey cloths was the cause of this advance. The more conservative buyers feel that the standard apron ginghams will follow with an advance in the near future of 1/4 cent a yard. The manufacturers of these ginghams are sold up, and the jobbers only have broken stocks on hand. It is impossible to secure a complete line for immediate delivery. Future orders are placed only at value.

The outlook for plain colored poplins is especially good for the coming season.

The Textile Machinery Exhibition in Boston.

Plans are rapidly assuming shape for the exhibition of cotton machinery to be held in connection with the convention of the National Association of Cotton Manufacturers during the week of April 26 to May 1. The Textile Exhibitors' Association, which was formed at the time of the first exhibition held in Philadelphia in 1907, has engaged Machinery Hall in the Mechanics Building on Huntington Avenue and an invitation has been extended to the Manufacturers' Association to hold its meeting in this building and will probably be arranged for the mutual benefit of both associations.

About 30,000 square feet have been plotted out and already a number of prominent machine builders have reserved spaces. Chester I. Campbell has been engaged by the executive committee to act as manager and secretary. Mr. Campbell is familiar with work of this kind, having had successful experience in managing the exhibitions for the automobile and motor boat industries.

Printed matter, applications for space, etc., are ready for distribution and details can be obtained on application to Chester I. Campbell, 5 Park Square.

CORRESPONDENCE AND NOTES

Upon Textile Topics At Home and Abroad.

RIBBON WEAVING.

BY OTTO BOTH.

(Translated from Die Bandweberie.)

(Continued from January.)

DOUBLE WARP WEAVES.

These weaves have a face and a back warp woven from one beam or spool in such a way that both back and face warp are stitched by the same pick. This produces not a hollow fabric but a single cloth. Any warp weave can be used, such as a satin and

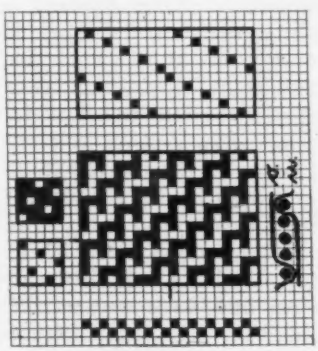


FIG. 41.

twills on either face or back, also combinations of a warp satin on the face and a filling satin on the back, making a double satin ribbon. The risers and sinkers of each warp thread are so arranged that the thread does not show on the opposite side of the cloth, thus making it possible to weave a cloth with the face of one color and the back of another. The single sinkers of the face warp must be set so that they come between sinkers of the adjacent back warp threads, while the risers of the back warp are so arranged as to come between risers of the adjacent face warp.

Fig. 41 shows a double warp weave having a 5-leaf warp satin for the face and a 5-leaf filling satin for the back, shown at the left of the illustration. At the right is a section of the cloth showing position of the face and

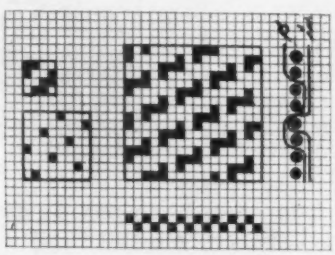


FIG. 42.

back warp. The face warp floating on the face and the back warp floating on the back, making two sides of the cloth the same.

Fig. 42 shows a double warp weave in which the face threads are woven with a

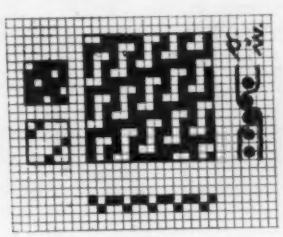


FIG. 43.

4-leaf twill and the back threads with an 8-leaf satin weave. The face and back weaves are shown separately at the left and a section of the cloth is shown at the right. The weaves shown at Figs. 41 and 42 have the warp dressed one face, one back. Fig. 43 shows a weave in which the warp is arranged two face and one back. The face warp is woven with a 5-leaf satin weave; the back warp with a 5-leaf twill; the two are shown

separately at the left, a section being shown at the right.

WEAVES WITH FACE WARP, CENTER WARP AND BACK WARP.

In these fabrics the face warp shows only on the face, the back warp on the back, while the center warp is concealed between the two. An exception is found in those weaves where the center warp is brought to the face or back to produce a pattern. Each filling thread interlaces all three sets of warp threads. In preparing the draft for these weaves the sinkers of the face warp are brought between two sinkers of the center warp. The risers of the back warp must come between two risers of the center warp. Balanced weaves, that is weaves with as many risers as sinkers, are advisable for the center warp weave. In drafting for this class of fabrics the center warp weave is first marked out and then tests are made to determine whether the sinkers of the face warp and the risers of the back warp come in the right position relative to the center warp weave.

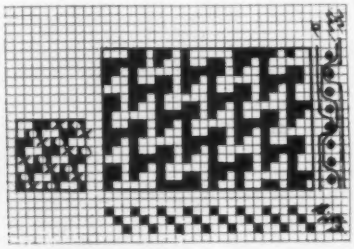


FIG 44.

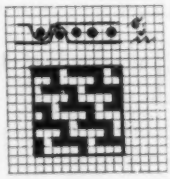


FIG. 45.

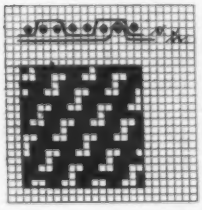


FIG. 46.

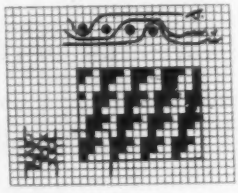


FIG. 47.

Fig. 44 shows a fabric of this kind with an 8-leaf satin weave for the facre and back warp and a 4-leaf twill for the center warp. The crosses in the draft at the left indicate sinkers of the face warp; the circles, risers of the back warp. A sectional view of the fabric is shown at the right.

DOUBLE FILLING WEAVES.

These are made with one set of warp threads, and two sets, back and face, of filling threads. The face filling does not show on the back and the back filling does not show on the face. In drafting these weaves the following rules are to be observed: The sinkers on the back filling picks must come between sinkers of the adjacent face filling picks. The risers of the face filling picks must come between risers of the adjacent back filling picks. Fig. 45 shows a fabric of this kind with the face and back each woven with a 5-leaf satin weave. A section of the fabric is shown at the top of the illustration. Fig. 46 is a draft having a 4-leaf twill for the face filling and an 8-leaf satin weave for the back filling. A section of the fabric is shown at the top. Fabrics are also made with a single warp and three sets of filling, face, center and back. The face filling only shows on the face, the back filling on the back, while the center filling is concealed between them. The last named serves to add weight and bulk to the fabric. The risers on the face filling picks must come between risers on the adjacent center filling picks. The sinkers on the back filling picks are placed between sinkers on the adjacent center picks. A fabric of this kind is shown at Fig. 47, the face filling being woven with a 4-leaf twill, the center filling with a 4-leaf broken twill, and the back filling with a 4-leaf twill. The position of the warp threads is shown in the section at the top of the illustration. In the draft at the left the crosses indicate warp sinkers on the back filling; the circles, warp risers on the face filling.

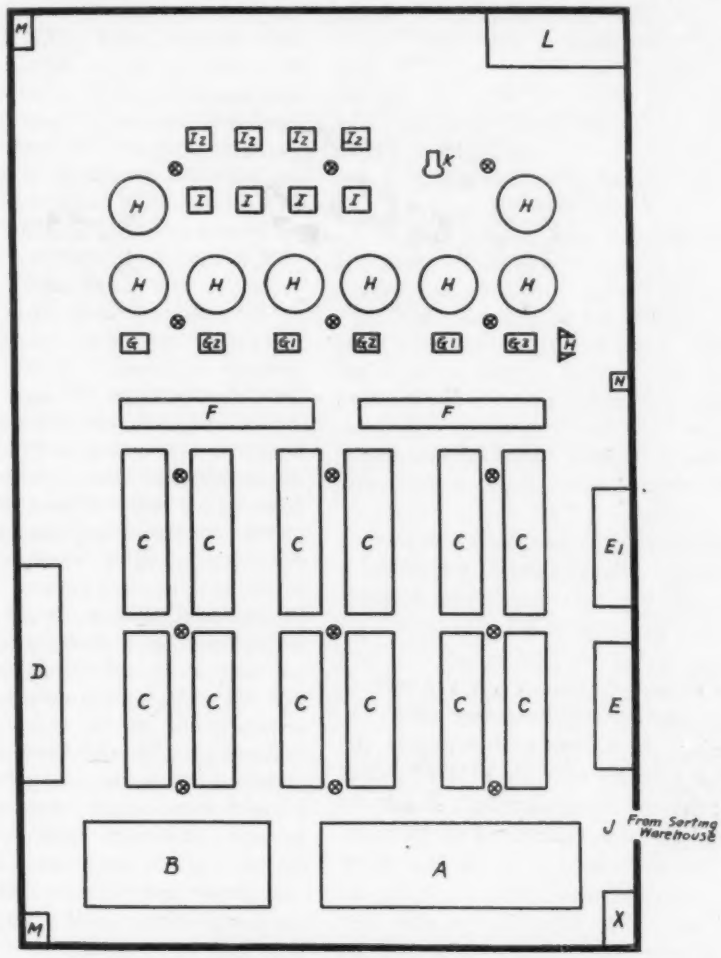
(To be continued.)

PLANS FOR A WORSTED SPINNING MILL.

BY JOHN BROWN.

A correspondent asks for a plan of a 4,000 spindle worsted yarn plant to include all processes from the raw wool to the spun thread. No fixed rule for planning such a mill can be laid down and we will deal only with averages. Fine or thick counts, low, medium or fine wools, all make some difference both in the number of machines required and the amount of work turned out.

In laying out a combing shed it has been found economical to divide it into squares of 400 feet, 20 feet from pillar to pillar. This enables the machinery to be set to the best advantage and leaves room for the operatives to work and for the material to be moved from one process to another, with ample space for storage. The pillars also come in at the right place for driving shafts without having to use unusually long lengths of belting. The arrangement also obviates a lot of counter shafting which would be required if the distances from pillar to pillar were either longer or shorter.



A WORSTED SPINNING MILL.

The wool enters the shed at J, Fig. 1, and passes through the process without turning back. The wool enters the washing ma-

chine, A, then passes to the dryer, B, then to carding machines, C, alongside of which are bins, D, for storing wool. On the right-hand side of the cards are the grinding frames, E. These are partitioned off, thus preventing emery dust from flying about in the shed. After leaving the cards the sliver goes direct to the backwashers, F. Room for storing sliver cans is provided. From the backwashers the wool goes to the first and second gill boxes, G^1 and G^2. At the end of the row is the punch box, H. The sliver next passes to the combs, H, and then forward to first and second finishers, I and I^2.

The testing pan and scales are at K. These should always be near the combs and finishers so that both condition and weight of slivers and tear of combs can be readily ascertained. L is the comb maker's shop and storage for circles. Ample space is left for packing purposes, also for bench and tools required for small repairs. MM, lavatories for work people; N, raised cistern for condensed water from backwashers and combs.

The machinery consists of 1 washer, 1 drier, 12 cards, 2 backwashers, 3 first and 3 second preparing gills, 1 punch box, 8 Noble combs, 4 first and 4 second finishers.

This plant with fine Botany should turn out 10,800 pounds per week (56 1/2 hours), or 2,400 pounds of long, heavy wools

The washer, A, has three bowls. In the first two the squeeze rolls nip at the level of the liquor; the third pair of rollers should be elevated and the wool conveyed to them by a creeper, thus allowing most of the water to escape from the wool before coming to the actual nip. The wool in the first two bowls being fully charged with liquor at the nip, all sand, dirt, etc., is ejected with the water. In the third bath, which is only a rinser, this is not necessary. All steam and water pipes should connect with a drain as near the machine as possible. Every bowl should have its separate steam and water feed, so that at any time either of the baths can be heated, or a further supply of water added.

Each bowl is supplied with a large thermometer, so placed as to be easily seen, the bulb being always in the liquor so that the temperature can be kept uniform. There is less danger of felting the wool if steam is introduced frequently, than by letting the temperature drop too far, and then putting on a big pressure of steam. A good temperature for greasy fleece is 120° F. in first and 115° F. in second and third bowls.

If Botany and fine cross breds are used no drier (B) will be required. In this case an oil sprayer can be fixed on the head of the third pair of rollers immediately over the beater, as shown in Textile World Record for January, 1908, p. 114.

For long and heavy wools which need to pass through a drier, B, the oil spray can easily be fixed at the outlet end and regulated as for undried Botany wools.

The card clothing depends on the qualities of wool to be worked. If for a mixed trade, it is a good plan to have one set say for 60s and another for 48s cross bred. This will give a fairly wide range, as the coarse set will serve for counts to 36s and up to say 56s. The fine set will answer for all fine counts.

Each card should have a separate coiler, although in some mills one coiler has to serve for two cards, thus effecting a slight saving in the first cost. It has the drawbacks of not only causing cans to be changed oftener, but of having more and thicker piecings in the backwashing operation and in causing the cans to wear out faster. The card clothing sets for Botany and cross bred wool is shown in the accompanying table.

CARD CLOTHING

Name of Roller	For 64s Botany			For 48s Cross Bred		
	Wire	Counts	Crown	Wire	Counts	Crown
1st lickers-in	Garnett	—	—	Garnett	—	—
2nd "	29	90	9	24	60	6
3rd "	30	100	10	26	80	8
4th "	32	115	10	30	100	10
1st divider	25	70	6	24	60	6
2nd "	29	90	10	26	80	8
3rd "	31	110	10	29	90	9

4th divider	32	120	10	31	110	10
1st swift	34	130	12	31	110	10
1st swift workers	34	135	12	32	115	10
1st swift strippers	31	110	10	27	80	8
1st swift fancy	31	70	8	29	60	7
1st doffer	35	140	12	32	115	10
Angle stripper	31	120	10	30	110	10
2nd swift	35	150	13½	33	135	12
2nd swift workers	35	150	13½	34	130	12
2nd swift fancy	33	90	8	31	70	7
2nd doffer	36	155	14	34	130	12

BACKWASHING.

Two double gill backwashing machines will be required for this plant. A 5-cylinder machine will do for all Botany and fine cross breds, while for lower and heavier wools an 8-cylinder machine is more satisfactory. Fallers pinned 12 per inch, 1/2 inch pitch of screw, will do for the first grade; while for the latter 10 pins per inch will be more suitable.

The best oiler is the one described in the Textile World Record for January, 1908.

A bluing device can be fixed over the second bowl, with a pipe running to the bottom of the bowl, instead of the ordinary overflow. Each bowl should have a separate outlet to drain, so that when bluing is resorted to the blued water can be run off without having to pass through the first bowl in the ordinary way. Each bowl should have a large fixed thermometer.

A great saving in the cost of backwashing can be effected if outlets from the drying cylinders are connected with a steam trap and the condensed water run into the cistern, N, Fig. 1. The steam outlets from card heaters and combs can be trapped in the same way, thus providing hot water in sufficient quantities to do all backwashing without having to draw from the ordinary water supply. This means a saving in steam and less soap is required for the scouring.

PREPARING BOXES OR GILLS.

For Botany and fine cross bred wool fallers with 15 pins per inch, 1/2 inch pitch screw and 2 1/2 inch front rollers, are most suitable, while for low qualities 13 pins per inch in fallers, with 5/8 pitch of single screw and 3 inch front rollers are needed. In both cases 3 inch back rollers are used. Three first and 3 second gills and 1 punch box will serve 8 combs, although it is better to have 2 punchers in case of a breakdown.

Noble combs are shown in the plan. If very low and coarse wools are to be used, Lester's nip machine is preferable The following lists show suitable sizes of pins and number per inch for Noble combs.

For fine work, say 56s and upwards.

LARGE CIRCLE

Rows	Per inch	Size of wire
1st	40	17 x 27 flat pins
2nd	40	17 x 27 "
3rd	38	19 x 27 "
4th	34	20 x 26 "
5th	30	23 round pins
6th	29	23 "
7th	28	23 "
8th	26	22 "
9th	25	22 "
10th	20	20 "
11th	20	20 "

Pinned over 1 5/8 inches. 1 1/2 inches long, 3/8 brass.

SMALL CIRCLES

Rows	Pins per inch	Size
1	44	18 x 28 flat pins
2	42	18 x 28 "
3	40	19 x 27 "
4	36	20 x 26 "
5	30	23 round pins
6	26	22 "
7	22	20 "

Pinned over 5/8 inch, 3/8 brass. 1 3/8 inches long. All B. W. G. sizes.

If low cross bred sorts are used the following sizes are suitable.

LARGE CIRCLE

Rows	Pins per inch	Size of wire
1st	24	16 x 24 flat pins
2nd	24	17 x 24 "
3rd	22	18 x 23 "
4th	16	19 round pins
5th	14	18 "
6th	11	17 "
7th	8	16 "
8th	7	15 "

Pinned over 3 inches, 1 7/8 inches long, 1/2 inch brass.

SMALL CIRCLES

Rows	Pins per inch	Size of wire
1st	26	18 x 23 flat pins
2nd	26	18 x 23 "
3rd	23	14 x 22 "
4th	13	18 round pins
5th	10	17 "

Pinned over 3/4 inch, 1 3/4 inch long, 7/16 inch brass.

If the circles in each class are made to the same gauge, the racks for both large and small circles can have a recess cut in. This

facilitates correct fitting and prevents circles from getting out of true, even if the screws should become loose.

FINISHING BOXES.

In setting out finishers ample room for the sliver cans should be left between the combs and first finisher, as 14 to 18 cans will be required to feed the first finisher. An overchanging creel should be fixed to the first box and so arranged that the rollers are over the center of each row of cans. This prevents dragging of the slivers. Great care should be taken that the conditioning rollers of all the boxes are at one level, otherwise uneven moisture will result. The first boxes should be single head and the second boxes double head.

For low cross breds the following sizes are suitable: First and second boxes. Back roller, 3 inches in diameter; front roller, 2 1/2 inches in diameter; pitch of screw, 1/2 inch double thread, 13 fallers up, 3 down, pinned over 9 inches, 14 pins per inch, 17s wire, front pins 1 inch and back pins 7/8 inch above faller.

For fine Botany: First and second boxes. Back roller, 3 inches in diameter; front roller, 2 inches in diameter; pitch of screw, 1/3 inch double thread, 20 fallers up, 11 down, pinned over 9 inches, pins 17 per inch, 18s wire, front row 7/8 inch, back row 1 inch above faller. A good spring balance near the second finisher is needed for testing the weight of tops.

In the plan ample room is shown for the storage of tops, also for packing and other purposes.

A shed is preferable for combing and its attendant processes, as the sky-light falling on the machinery and material enables the worker to see the work better than with a side light.

DRAWING AND SPINNING.

For carrying on these processes a mill of several stories is preferable to a shed. 1st. Because the rays of the sun do not beat upon the glass overhead and there is likely to be less variation in the temperature. 2d. The light comes from the side and enables the operative to see the fine threads as they pass from roller to bobbin better than would be the case with a sky-light.

A plant of 4,000 spindles will turn off 12,000 pounds per week of 2/28 knitting yarn and requires from 1,600 to 2,000 spindles to double for them. Four thousand spindles will turn off about 5,000 pounds of single 60s weft for weaving purposes.

ENGLISH NOTES.

By Our Special Correspondent.

[In the January installment of English Notes an error occurred in the reference to cheap friezes. The price should have been given as 19d (38 cents).]

"And what did you think of the American mill agent?" was asked of a returned woolen man of whom it may be observed that he had been anything but a failure on American soil.

"I thought it would be better," he replied, "if most of them knew more about manufacturing. You know the English idea? First and foremost get out a good cloth. Concentrate on the goods. Produce something worth showing. Have something substantial to be going on with!"

It was asked innocently whether American agents do not do that.

"Heavens! Go and talk to them. Talk to fifty or a hundred of them as I have done during these years. What they really want is not to make cloth, but to get labor-cost, machine-cost or any old kind of cost down. They put the cart before the horse and the dog in front of the wagon. They will discuss system for everlasting without a word about the vital, profit-bringing cloth. The goods they take for granted. The agent's great idea is to go on just as before, but just a little more cheaply."

The American will know if the cap fits and whether the average agent is fighting prices up or working costs down.

* * *

It was asked of the returned Englishman what is the principal advantage that the woolen manager in this country (England) possesses? The reply came with all the force of conviction:

"Absence of worry. . . . Knowledge that when you have given your instructions the help will carry them out fairly and make a

reasonably respectable job of them. You don't—you can't—find such help in the States. The conditions change the nature of the men. Transplant the docile people from our mill to America and presently you'd find them not much less heedless than the rest.

"I would not say but that our men are too subservient and too absolutely at the mercy of employers. I half wish they did take a little more of their own way. But they are loyal, they do their best for you, and do sometimes more than they need. Any way they don't turn your hair grey at half the rate those fellows do in the States."

* * *

Another foreign-held patent has been revoked and this time an American one concerning sewing machines. The decision knocks on the head the suggestion prematurely made by Consul McCunn of Glasgow in the Daily Report of Dec. 14. It would not be working to "an adequate extent to manufacture the parts of a machine in the United States and have them assembled in the United Kingdom." This patent was revoked although certain patented parts were replaced by heavier parts made in this country and although other unpatented parts were made in this country entirely.

A loophole has been discovered in the Act which previously escaped attention. If a patent is worked "mainly abroad" it is liable to forfeiture. A foreign patent not worked at all either in or out of this country is inviolable and this fact leaves some dissatisfaction. The Act had been relied on altogether to prevent dog-in-the-manger tactics, whereas it is clearly seen and confirmed that these are still possible.

The mouthpiece of the German steel trade, the Berliner Neusten Nachrichten, calls the British Act "industrial robber-baronism," says it endangers a large portion of German export trade and describes as impudent the offers of factory sites, which are being made indiscriminately to Germans. Probably the interpretations put upon the Act will quicken laggards. Temporarily the stream of immigrant industries has stopped.

Belfast linen traders propose to join with New York importers in a request for a lower tariff on linens. The argument that the American industry is inadequate to the country's need is to be used. Whether in view of the desired reduction or not, tablecloth makers both in Scotland and Ireland have made preparations for a good American season. A large number of new designs have been adopted expressly for the American market and a flock of salesmen are leaving for New York in early January. More manufacturers than hitherto are showing designs simply in black point upon white paper and quoting for their execution in different grades of cloth. A considerable number continue to make 15-inch borders by repeating portions of a 9-inch jacquard "machine."

* * *

A large Bradford spinner connects the vegetable-fiber-in-wool nuisance with jute dearer than $75 a ton. It is then that woolpacks are supposed to give off most fluff. Haggling still proceeds between grower and buyer as to which should pay the slight surplus cost of superior packs. It might be thought that the manufacturer would be glad to free himself so cheaply, for a worsted man has been arguing in public that it is twenty times cheaper to keep jute out of wool than to burl particles of it out of cloth. But there are certain complications in the case.

* * *

The tweed manufacturer does not particularly care, as a trifle of vegetable matter is not a serious detriment to his goods. The weaver of worsted gets his wool in top or yarn form, with its unrevealed defects included at second or third hand. Commonly he is out of touch with the grower or packer and it has to be said that not every manufacturer is persuaded that the comber is no way to blame for the grave nuisance existing. By April or so the committee investigating the trouble, and on which some Americans sit, will issue a report.

* * *

Slubbing dyeing is one of the things that

is said to be done more correctly in the States than it often is in England. The commission slub-dyer tells you the material he delivers in three distinct shades will be right after gilling. However, some are unreasonable enough to expect solid shades when they are ordered and not mixtures which are approximately correct.

The hank-dyer has not the same opportunity of slovenliness and good dyers have found more than a little work in yarn-dyeing discolored worsted yarn to the fashionable olive brown shades. A reduction of 18 cents a yard is effected forthwith on 20-ounce goods of 60s quality by using discolored yarn and no ordinary person sees the difference between the cloths.

* * *

A worsted manufacturer in the Huddersfield fancy trade whose cloths have mostly more than 100 picks per inch was told that his prices were high. He gave some reasons. One style specially designed had been confined to a London customer. Three yard patterns had been made for him at a killing cost and the customer had ordered one 45 yard piece and had not repeated. Declining to say what patterns cost him annually he referred to the pattern, designing and selling costs of a mill that may be the second largest in Huddersfield. These run from $100,000 to $150,000 per annum. For the most exclusive fancy trade designing is done without respect of the difficulties of manufacture. It follows that prices must be high when quantities to a pattern are small and styles are innumerable. It is a trade, however, in which the favored few with large capital and good reputations make admirable returns.

* * *

A simple means is in use in certain English dyeworks to preserve the "open shop." Upon engagement the operative is required to sign a printed form by which he undertakes not to join a labor union without giving three months' notice of his intention. In a few works the undertaking is forced upon all comers. In others it suffices to keep forms in reserve and to use them sparingly to silence known breeders of trouble. It is more in work done than in price paid that the advantage of employing non-unionists in the dye houses consists.

* * *

Soap bark, the bark of a South American willow, is a drug dyers used to be able to use in tinting. The excellent lather it gave carried up out of harm's way any undissolved particles of dyestuff. First the manufacturers of dry shampoos admired it and now the makers of (temperance) hop ale have taken such a fancy to it that the price of the bark is nearer $150 a ton than the $30 it used to sell for. Not a true soap, for the decoction is faintly acid in reaction, the material is still sought out by dry cleaners.

* * *

The existing English law forbids deductions from wages for bad work unless there is a contract for it, says that the deduction must be fair and reasonable and not in excess of the loss occasioned to the employer, and that particulars of the deduction must be rendered in writing. A Royal Commission recommends that deductions should cease to be a means of recouping damage and be wholly—as they usually are—in the nature of a fine. Yorkshire woolen manufacturers produced returns from various mills to show the extent of the deductions made by them. The fines ranged from 19 to 36 cents per $1,000 of wages. A textile unionist cited a case in the worsted trade where a man owed 25 cents to his employer for coming to the mill that week. His earnings, on short time, were 87 cents and his fine $1.12. A recommendation is given to limit the ratio of fines in any one week to 5 per cent.

* * *

The first Truck Act, passed in 1464, was for the woolen industry exclusively. It was enacted: "That every man and woman being clothmakers, from the said Feast of St. Peter, shall pay to the carders, spinsters and all such other laborers, in any part of the said trade, lawful money for all their lawful wages and payment of the same."

* * *

A good part of the work of the Imperial Institute, London, relates to fillers and it re-

ports on the average upon one tropical or other sample every day. It is a Government enterprise working in conjunction with the colonial government which assesses commercial values and takes particular interest in insect pests. From West and Central Africa it has brought to light efficient substitutes for jute and from East Africa valuable wild banana fibers. Flax from Bengal and East Africa and true silk from the Transvaal are reported upon favorably in a summary of the year's work. In view of the uncertain market for ramie, planters are enjoined to be cautious in putting that crop in. The thousand specimens of cotton and cotton plants at South Kensington include a collection of sixty standard commercial varieties.

AN ATTACHMENT FOR LOOMS.

The object of this device, recently patented, is to stop the loom automatically when a tangle or similar disarrangement of the warp threads occurs. It is described by the inventor as follows:

When there is a cross or hitch in the warp or tangles should occur, then there is tendency to tighten the threads in such a manner as to make a bad looking place in the cloth unless the loom be stopped before this can occur and the trouble be remedied.

The present invention comprises a means used in connection with the lease rods of the loom so that a structure will be caused to move into the path of the oscillating bar of a warp stop motion loom and the loom be thereby stopped whenever either lease rod is actuated by a cross or tangle or hitch in the warp threads. The lease rods are normally held by a yielding force in a position to maintain a strap or bar having in it a joint capable of being flexed, in a position to hold an interfering structure out of the path of the oscillating bar. Should, however, either lease rod be engaged by a crossed or tangled warp, then the force holding this bar against movement will be overcome and the connection from this bar will be fixed, thus moving the interfering structure into the path of the oscillating bar and thus cause the loom to knock off.

Fig. 1 is a sectional view of a loom with the device attached; Fig. 2, a perspective view of the mechanism. Attached to the end of the lease rod is a strap, 6, having one end bent into an eye sprung around the lease rod so as to move radially about the axis of the lease rod. The other end of the strap is bent at right angles to the first end, as shown at 8, and to this end there is pivotally a link, the other end of which is pivotally connected to an open eye on a rod fast to a fixed portion of the frame of the loom. The lease rod is under the control of the weight secured by a cord to the corresponding end of said lease rod, it being understood that while these parts are shown as connected to one end only of the lease rod, there will be duplicate structures like that described at each end of the structure.

The link is passed through or may be otherwise connected to a sliding bar, 16, in the path of the lower end of which is a vibrating or oscillating bar, which is assumed

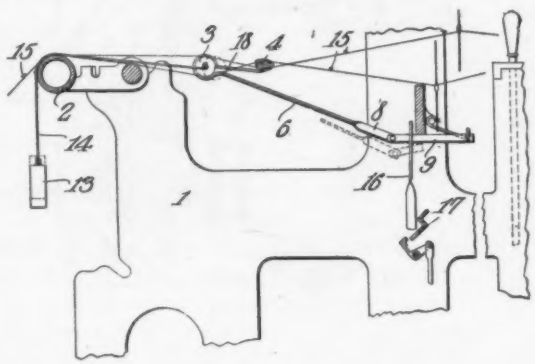


FIG. 1.

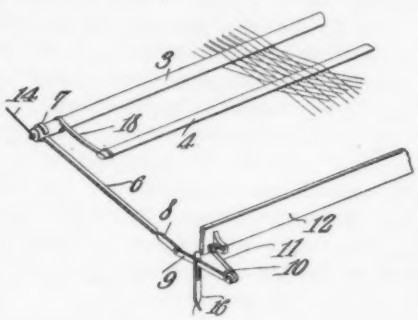


FIG. 2.

to be connected to the throw-off mechanism of the loom in the usual manner. The particular structure of the throw-off mechanism need not be illustrated since the action of such structures is well known and any of the approved means may be used. The corresponding ends of the lease rods are connected by a coupling so that the two lease rods move together.

Suppose, now, that any of the warp threads become crossed or entangled or otherwise bound together, then the entangled portion ultimately reaches the lease rod, 3, and the latter is moved toward the right, as viewed in Fig. 1 against the weight. If the entanglement takes place between the two lease rods, then when it reaches the lease rod, 4, the same action takes place as when the entanglement engages the lease rod, 3. Under normal conditions the weight is sufficient to maintain the strap and link in alignment or nearly so with the bar elevated out of the path of the vibrating feeler. As soon as the entangled threads reach the lease rod, 3, or lease rod, 4, the rods are moved, as stated, toward the right and the strap and link are flexed at the joint between them so that the link moving about the eye as a pivot is inclined downward to such an extent as to permit the bar to drop until its lower end is in the path of the feeler, the latter being stopped by the bar. This causes the loom to throw off in the usual manner. It is immaterial where the defect in the warp threads may occur, since the two lease rods, being held by the weights at each end, will move bodily forward under the action of the entangled threads and cause the bars at each end to drop into the path of the oscillating feeler.

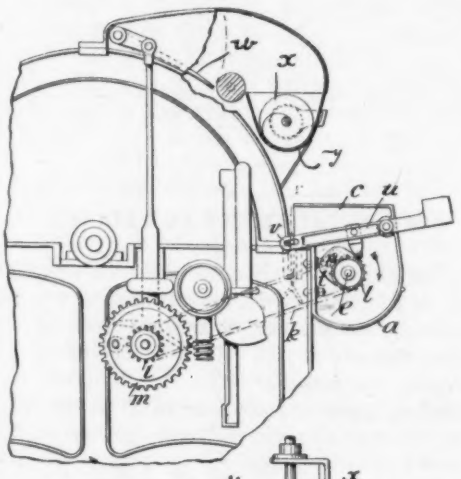
It is estimated that 25,000,000 yards of woolen cloth alone is annually used in Chicago in the manufacture of clothing.

It is only 170 years since all the textile manufacturers in England were carried on by hand. In 1738 spinning by rollers was introduced by John Wyatt and patented in the name of Lewis Paul, a foreigner with whom the unfortunate Wyatt went into partnership.

A WILLOW FOR RAW STOCK.

The object of a new form of willow or duster, recently patented by an English inventor, is to provide the machine with an intermittent feeder which can be charged either by hand or mechanically as it feeds the machine. Fig. 1 is a side view; Fig. 2, a plan showing the feeding and delivery end of the machine; Fig. 3, a sectional view of the

FIG. 1.



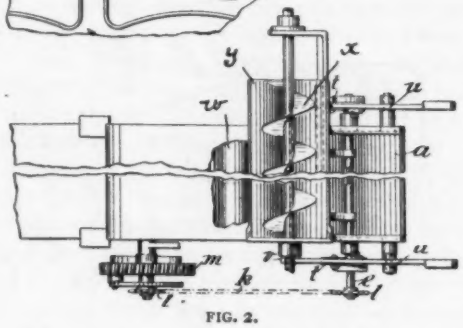


FIG. 2.

feeding device. The feeder consists of a plain trough, a, forming in cross section an arc of a circle employed in front of the inlet, b, of the machine having raised ends, c, and of a blade, d, carried by a shaft, e, suitably mounted and adapted to rotate in the trough, a, and push the fibers to be treated previously placed into the same through the inlet, b, into the machine, this trough being charged while the said blade feeds the machine. The blade, d, may be secured to the shaft, e, by means of brackets, f, as shown in Fig. 3. The feeder may be rotated inter-

mittently or continuously in any convenient manner, say as in the present instance intermittently, by means of a chain, k, and chain wheels, l, actuated from the intermittently rotated deliver door motion wheel, m, see Figs. 1 and 2.

The feeder is charged with fibers direct by hand or automatically by employing a beater rotating over a grid in connection with a pair of feed rollers and a feed lattice whereby the feeder is continuously supplied with the fibers to be treated and the latter freed from a certain amount of impurities before entering the feeder. These impurities are caught by a suitable chute and thereby conveyed

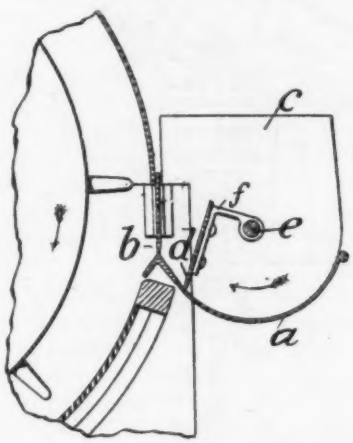


FIG. 3.

underneath the grid of the machine.

In some cases the machine inlet is furnished with a door adapted to close it while willowing. This door, suitably guided at each end, is closed and opened by means of cams, t, operating levers, u, in which the door ends, v, engage, see Fig. 1.

The lattice by which the treated fibers have been delivered is dispensed with. In place of it there is in front of the delivery door, w, Figs. 1 and 2, a spiral conveyer, x, adapted to rotate in a perforated trough, y, and deliver the treated fibers out of the machine, the trough permitting small impurities which may be still left in the treated fibers to leave them by dropping through the perforations in the trough, y.

A CONTINUOUS THREAD FROM HORSE-HAIR.

This machine, which has been recently patented, has for its object the production of a continuous thread from stiff horsehair for use in weaving horsehair cloth, tailor's linings and similar goods. Heretofore only the very long and expensive hairs have been used, and as a result the width of cloth has been restricted to the length of the hairs that could be obtained. With the new machine the hairs are spliced in a continuous thread by wrapping them with a fine cotton or other yarn. The machine and process are further described by the inventor as follows:

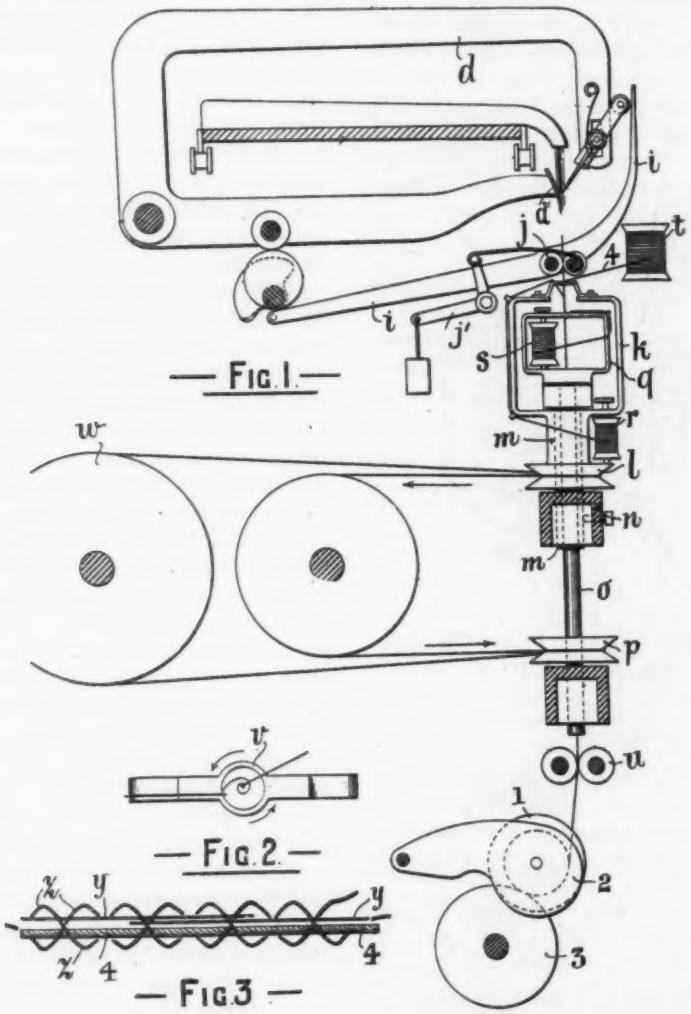
Preferably two wrapping or binding yarns are employed wound in opposite directions and a reinforcing or core thread may also be used. In fine threads where the hairs are used singly with but little overlap this is done in order that the continuity of the thread may not fail should the selector fail to present a hair. In preparing a thread according to this method it is not necessary to employ the longest and most expensive hairs; hairs of short lengths which may be varied without regard to the width of the fabric may be employed, all being joined together into a continuous length by binding and splicing the overlapping ends. The yarn may be made stiffer or more pliable as the overlap is increased or diminished.

Fig. 1 is a side elevation of the machine; Fig. 2, a plan of one of the parts; Fig. 3, a view of the spliced thread.

After selecting a hair, which is seized about an inch from its end, the selector descends with the lever, d, until the hair is inserted between the nip rolls, j, one of which is covered with india-rubber or some similar substance capable of adjusting itself to the variations in the size and number of hairs presented to it. The rollers are held together by the weighted bell crank lever, j'. As soon as the nip rolls, j, have seized the hair the lever, i, presses the selector and releases the hair; the lever, d, rises with the selector open to repeat its operation of selection as frequently as may be required to

produce a yarn of the desired size. In Fig. 1 the selector is shown as having risen to its full height and closed upon a hair, the previously selected hair being shown as nearly passed through the nip rolls.

Close below the rolls is the flier, k, driven by the whirl, l, running on a bush, m, held fast by a set-screw. Through the center of the bush passes the spindle, o, driven in the opposite direction by the whirl, p, and at the top of the spindle, o, is the flier, q, rotating inside the flier, k. There is a hole throughout the axis of the spindle, o, about one-eighth of an inch diameter. Attached to the flier, k, by a movable pin is a bobbin of worsted, cotton or other material, r, and a similar bobbin, s, is similarly attached to the flier, q. Fastened to the top of the flier, k, is a ring, v, shown at Fig. 2, having a spirally coiled wire attached to one side. Through this ring is passed the thread from the bobbin, r, and also the continuous thread from a bobbin, t, which runs on a stationary pin attached to the frame. Below the center of this ring is a hole about one-eighth inch diameter in the center of the flier, q. The thread from the bobbin, s, is passed through this hole with the horsehair, the thread from



— FIG. 1. —

— FIG. 2. —

— FIG. 3 —

bobbin, r, and the continuous thread from the ring above. The whole are passed down the axial hole in the spindle, o, and through the rolls, u, which are driven at a little faster circumferential speed than the nip rolls, j. From the rolls, u, the threads pass to the winding bobbin, 1, running in the holder, 2, and operated by friction on the drum, 3. As soon as a hair emerges from the nip rolls, j, it encounters the ring, v, rapidly rotating in the direction indicated by arrows in Fig. 2.

NOTES ON RESETTING COTTON COMBERS.

BY BOLSTER.

It is customary in mills using ordinary Heilmann combers to readjust the various parts two or three times every year in addition to the adjustments which are necessary in changing from one length of cotton to another. The regular readjustment is made necessary by the continual jar and vibration, which causes the parts to work away from each other.

Some carders or comber men may reset oftener than two or three times a year, the frequency depending upon the speed of the machines and the character of the work.

We will assume a single nip ordinary comber is to be erected. The person in charge of the work should first have the various parts cleaned and attend to any necessary repairs. Next the center lines should be located. Either the shafting or an adjoining machine could be used for this purpose. We may now proceed to erect the ends and roll beam, seeing that they are perfectly level both ways. Then mount the roll stands and line them up.

After leveling the roll beam and stands, the machine may be secured to the floor by lag screws. Some builders do not fasten their machines to the floor, relying upon the weight of the machine to hold it in place. The tendency to increase the speed of the combers makes it advisable to secure the machines to the floor, as this serves to reduce the vibration, besides keeping them in line. Another way to reduce vibration is to reduce the height of the machine.

We are now in a position to mount the nipper shaft; this is usually about 1 1/2 inches in diameter, and extending the whole length of the machine. On the Whitin comber to secure less strain and wear on the nipper shaft and cams, the nipper shaft is made in two pieces; each operating half of the machine by separate cams.

The long lifter shaft may be mounted at this stage. This is another shaft extending the length of the machine, being about 1 1/4 inches in diameter, and forming part of the detaching mechanism. This shaft is also dispensed with in the Whitin comber. In place of operating all the lifters by one shaft and one cam, an arrangement is provided for operating every two heads directly by a separate cam, thus obtaining a more positive motion on the lifters, and overcoming the lost motion caused by torsion on the long shaft. There are some comber men who dislike this arrangement owing to the number of cams which are necessary. For example, a six head comber will require three lifter cams; an eight head, 4 lifter cams; while only one is used with the long lifter shaft. The objection is raised that it is more difficult to set three or four cams to act in unison; this, however, is no serious matter as the cams are milled, and with a little extra care can be set to work with as much accuracy as by the old method.

The cylinder shaft is now placed in position with the cylinders threaded loosely upon it. This is the central shaft of the machine and must be adjusted to run freely in its bearings, and connected with the short shaft that carries the index.

The index may be used to facilitate the setting of the various parts, so that they will operate with the cylinder at the required time. These adjustments are referred to as timing, thus distinguishing them from other settings which are made by gauges.

The index may be either a special disc secured to the cylinder shaft (as on the Mason comber), or the index may be the rim of the 80 gear invariably used on the head end of the cylinder shaft on all makes of the Heilmann combers. Whatever method is adopted the idea is to divide the circumference of the cylinder into 20 parts or sections, each of

which are subdivided into quarters, making a total of 80 sections; each section is equivalent to one tooth on the 80 gear referred to above. The numbers used are 1 to 20 inclusive and each number equals 4 sections, i. e., between 1 and 2 there will be 4 teeth of the 80 gear, or 4 sections on the dial or disc when the latter are used. Secured to the frame of the machine is a pointer or finger, placed in such a position as to point to the sections of the index when on the top centre.

If referring to the timing of a certain part when the index is at 9, it means that when the setting is made the pointer must be over the section marked 9. If 9 1/4 is used it indicates that the pointer must be one tooth past 9. If 9 1/2 or 9 3/4 is used they represent the second or third tooth respectively between sections 9 and 10. The same rules apply to any of the other numbers up to 20, which is the last full section and after which the numbers are repeated. For example, the sections between 20 and 1 would be indicated as 1/4, 1/2, 3/4 and not 20 1/4, 20 1/2 and 20 3/4.

After the cylinder and index shaft is adjusted we place the cam shaft into position and see that it runs freely in its bearings. Then put the short shaft carrying the notch gear and internal gear into place, and throw the 80 gear on cam shaft out of mesh with the gear which drives it.

Put on the pawl arm and cam roll and secure in position; then turn the index to 5 1/2 and turn the cam shaft until the cam roll is in the heel of the detaching cam, after which the 80 gear may be put into action again and bolted to the flange.

Next clean the fluted segments thoroughly and secure to the cylinder; then place the needle segments in position, after cleaning the cylinder surface upon which they rest.

We next place the small lifter shaft into position, seeing that all the lifting blocks are in line and secure. Next place the brass bushings for the steel delivery roll into position, and after putting in the roll, see that the roll and lifter shafts are perfectly free when caps are screwed down.

The long delivery roll is now set to the fluted segments of the cylinder with a 21 or 22 trowel gauge. This is done by raising or lowering the roll stands, and when completed places the steel roll parallel with the cylinder shaft.

The top comb shaft may now be placed in position and lined up with the detaching roll by inserting a finger gauge of about 7 to 8 inches in length between the inside surfaces of the roll and shaft. This distance is chosen because it represents practically the working lengths of the comb arms, with accommodation for a variation in the angle of the comb.

The large tin waste chutes must now be cleaned and placed in position, care being taken to have them well up to the small lifter shafts, and at the same time clear but firmly secured.

Turn the index to 5, and set the front edge of the segments to the detaching roll with a 1 1/8 inch gauge; then secure the cylinders to the shaft and try gauge. This lines up the cylinders on the shaft, and causes each section to come into operation at the same time. In making this adjustment the cylinders must be central with the stands before being secured to the cylinder shaft.

Set the feed roll to the detaching roll in order to get the former parallel with the latter.

This distance varies with the length of the cotton to be combed, and may be as follows: For cotton having less than 1 1/4 inch staple use a gauge of 1 11/16 to 1 13/16 of an inch; for cotton from 1 1/4 to 1 1/2 inch staple, a gauge of 1 13/16 to 1 15/16 of an inch; while for cotton over 1 1/2 inches, a gauge from 1 15/16 to 2 1/16 of an inch may be used. The gauge used for setting the above is a finger gauge which rests on the detaching or delivery roll and extends to the front surface of the feed roll, so that the above distances represent the space between the nearest points on the surfaces of the two rolls.

We now adjust the various parts of the nipper block or frame to each other; this may be done either on the machine or with the block in a vise.

(To be continued.)

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring ,not for publication, but as an evidence of good faith.

For reply to questions that are not of general interest to readers of textile journals, such as those relating to the composition of yarns, analysis of fabrics, etc., we will charge the enquirer with the cost of the investigation.

A Print Cloth Mill.

Editor Textile World Record:

Kindly give me a list of cotton spinning machinery required to supply 125 looms for the manufacture of print goods, 28 inches wide, and the power required to run them. Dunster (1041).

The following is a list of cotton spinning machinery required to supply 125 looms for the manufacture of print goods:

	H. P.
1 breaker picker	7
1 intermediate lapper	7
1 finisher lapper	7
6 cards	1⅞
1 drawing, 1 head of 5 deliveries, 1st drawing	1
1 drawing, 1 head of 5 deliveries, 2d drawing	1
1 slubber, 52 or 56 spindles, 12 by 6	1¼
2 intermediate, 72 or 78 spindles	2¾
4 fine frames, 120 or 128 spindles	5½
12 spinning frames, 256 spindles, half warp, half filling	35
1 spooler, 100 spindles	½
2 warpers	½
1 slasher	1¾
125 looms	26
1 folder	⅛
1 shear and brush (if this is necessary)	3¼
1 waste picker	1½
Total	103

There is a combined breaker and finisher picker that would take the place of the breaker picker, intermediate and finisher, so far as making the laps are concerned, and such machines are used in small mills on coarse goods. I am sure that such a machine would give you as clean cotton cloth both as to leaf and slugs. Probably an opener with a small blower system would overcome the difficulty. I intend some day to install such a system to open my cotton in better shape.

I should recommend the following machinery for a 125-loom mill:

	H. P.
1 bale breaker with lattices for two mixings, 3 ft. by 6 ft. 2 in.	3
1 hopper feeder with opener and single beater lap machine combined, 36 inch lap, 27 ft. by 6 ft. 2 in.	12
1 finisher lap machine, double beater, to make 38-inch laps from 4 laps From single beater lap machine, 14 ft. by 6 ft. 2 in.	5
1 thread picker for extracting hard ends from the waste of ring frame roller laps, so that the waste can be used in the mixing for making the filling yarn, 4 ft.	½
8 revolving flat cards, 37 inches on wire, 50 cylinder, 26-inch doffer, 110 flats 1 3/8 broad; 10 ft. 6 in. by 5 ft. 6 in. each	1½
1 set drawing frames, 3 heads of 7 deliveries each; 35 ft. These may either be arranged one in front of the other or in a line	4½
1 slubbing frame, 66 spindles; 27 ft.	1½
2 intermediate frames, 88 spindles each; 27 ft. each	2
6 roving frames, 112 spindles each for 4 1/2 hank roving; 27 ft. each, 2 h. p.	12
22 ring frames, 224 spindles each = 4,928 spinning spindles; 27 ft. each, 3 h. p.	66
1 winding frame, 200 spindles, 25 ft. long. This frame should be supplied with a traveling apron to	

carry the empty ring bobbins to the end of the frame	4
2 beaming frames for making back beams for the sizing machines; 25 ft.	1
1 sizing and taping machine (this really belongs to the weaving department)	6
Total	132½

It is calculated that 1 h. p. will be required for 40 ring spindles and the necessary preparation machinery, but from actual experience it is advisable to reckon 38.

A plant of these dimensions cannot be worked as economically as one of any four times the size, as the preparation equipment you are compelled to install is capable of supplying considerably more spindles, at the same initial outlay. A number of cotton mills at the present time are doing away with making mixings, and are using the cotton direct from the bales, but having had practical experience with both systems, I have no hesitation in recommending having mixings, as the exposure of the raw cotton to the atmosphere for say three or four days previous to using, allows it to open out naturally, which puts it in a more suitable condition for subsequent manipulation than what might be termed the artificial mode of treatment in feeding the cotton direct from the bale to the opener. Certainly, a concern can be worked with less capital by not having mixings, as so much less cotton is required on hand, but the advantage of being enabled to make a more satisfactory yarn with less loss in waste, and less wear and tear on the preparation machinery, is considerably greater than the small amount of interest on capital that would be saved. There is nothing more detrimental to cotton machinery than badly opened cotton, as it puts a strain on certain points that should be avoided, and the faults of the preparation machinery are apparent to the practiced eye, in the yarn and cannot be remedied after leaving the lap machine. In fact, the proper manipulation of the cotton in its earlier process is the secret of success in cotton spinning, as it affects both the quality and quantity of the yarn produced, and also the amount of waste made.

If there are any further particulars you desire respecting these machines, such as speed of spindles and front roller, length of lift, diameter of front roller, width and diameter of pulleys required on frames, twist per inch, grinding apparatus for cards, etc., I will be pleased to supply same. In ordering new machinery it is always advisable to have every little detail specified, in order to prevent additional expense on necessary items that have been omitted when making the contract. These "extras" should be avoided, or they will be found to foot up to a considerable amount. Denbigh.

Cost of Knit Goods.

Editor Textile World Record:

Please explain the method of finding the cost of yarn in knit goods under the following conditions:

1. Goods 7 lbs. to the dozen.
   Yarn: ⅓ at 60 cents per lb.
   ⅔ at 25 cents per lb.
2. Goods 6½ lbs. to the dozen.
   ¼ at 38 cents per lb.
   ⅛ at 80 cents per lb.
   ⅛ at 90 cents per lb.
   ½ at 28 cents per lb.

Cana (1029).

The cost of the material in the goods depends upon the waste made in knitting. This must be estimated as closely as possible. Assuming it to be 5 per cent., the method of calculation is as follows:

1. ⅓ yarn at 60c. = $0.20
   ⅔ yarn at 25c. = .16⅔
   1 $0.36⅔
   $0.36⅔ × 7 = $2.57
   $2.57 ÷ $0.95 (100% — 5%) = $2.70, cost of yarn per dozen.

2. ¼ yarn at 38c. = $0.095
   ⅛ yarn at 80c. = .10
   ⅛ yarn at 90c. = .112
   ½ yarn at 28c. = .14
   1 $0.447
   $0.447 × 6½ = $2.91
   $2.91 ÷ $0.95 (100% — 5%) = $3.06, cost of yarn per dozen.

Welts and Mending.

Editor Textile World Record:

In the article, Starting a New Hosiery Mill, in the April issue, you speak of welting as one of the important processes of a knitting plant. As we are starting a hosiery and underwear mill, we would like to know just what welting is, and how it should be done to get perfect work. I would also like to know if you have a particular way of mending bad work.

Medallion (1008).

The term welting is used in both hosiery and underwear mills, but does not necessarily have the same meaning in both. The term welt when spoken of in connection with the manufacture of hosiery, is the operation which locks the stitch at the beginning of the rib top to keep the edge from raveling. In plain knit seamless ladies' hosiery the welt is what is commonly called the hem. In all plain knit goods it is impossible to make the welt or rather lock the stitch automatically, and it has to be hemmed, thus necessitating an extra operation. This is sometimes known as hemming and sometimes as welting.

In full fashioned hosiery the welt or hem is made on the knitting machine by simply knitting the fabric some four inches in length and doubling the stitches over the knitting needles the second time. This operation is very simple and is one that all full fashion knitting machine operators learn very readily. The seam at the back of the full fashioned hose is sometimes called the welt, but generally it is called the seam, and the operation itself is known as seaming. This is one of the important operations in the manufacture of full fashioned goods, as a heavy seam is sure to give the wearer more or less discomfort. The operator is usually to blame for any defect in the seams, as the seaming machines can be set to make the seam of any size desired.

The welt in seamless hosery is considered very important, as it has much to do with the finish, appearance and wearing qualities of the goods. In the ribbed goods we have what is known as the full welt and the plain or single welt. All single feed ribbers are built for making either a full or plain welt. In the double feed machines, unless specified in ordering, we have only the plain welt. Double feed machines are also made for the full welt. The full welt is usually found preferable on coarse machines where the goods are usually knit loose, while the plain welt or half welt is usually preferred on fine goods where the stitch is finer, as it makes a much finer appearing top.

All standard makes of ribbing machines are equipped for making as many welts on the top as desired. The number of welts advisable to knit on the top depends largely upon the class of goods or rather the number of threads used in the tops. In goods where a heavy single yarn or a two or three ply twist yarn is used a single welt will make a neat finished top. For goods where two or more fine single threads are used it will be found advisable to make two or three single welts close together, as the welts have a tendency to keep the top from having ragged edges and curled welts. Manufacturers having extensive lines where several styles are very similar, often use the welt system to distinguish one style from the other. For instance, Style 10 is known to have a single welt; Style 20 is known to have two welts close together; Style 30 to have two welts wide apart; Style 40 to have three welts, etc. This serves to distinguish the different styles.

The welting of plain knit seamless hose is done by simply hemming the top of the stocking on a machine known as the hemmer. This operation is very simple and is easily learned by an inexperienced operator. The most important part of this operation is to get the hems all the same width and to have the seams run straight. In the last few years there have been some great improvements made upon the hemming machines. We now have what is known as the elastic stitch. This is a great advantage over the old plain stitch as it allows the work to stretch as far at the hem as at any other point in the stocking, and practically does away with the old trouble of the breaking of the hem stitch.

In regards to the mending of bad work I do not regard the mending as important as the inspecting, as most goods which have to be mended usually have to be thrown into seconds. However the mending should be

done as neatly as possible. There is no special way of mending hosiery so far as I know, although all expert menders have a certain knack for doing their work which insures neatness. It is impossible to explain the way mending should be done, as the actual work itself is concerned in an article of this kind, as the work can be learned only by actual experience. It is the custom in most mills to do both the inspecting and mending in the same department. The advisability of this system depends largely upon the capacity of the mill. In mills having a small capacity this system can be carried out with a fair degree of success, while in mills of a large capacity it will be found advisable to have the work inspected and mended in each department separately. All work should be thoroughly inspected and mended in each department before passing to the next. This will necessitate extra handling of the work, but this expense will be more than offset by the reduction of seconds and waste. In each department there is bound to be a certain proportion of defective work, and if it is sorted out and mended before it is allowed to pass out of the room much of it can be saved and finished as first class work. If it is allowed to pass from one department to another the extra handling is certain to increase the defective work and by the time it reaches the mending room it is so bad that the best we can expect is to finish it for seconds. There is also another advantage in having the work thoroughly inspected in each department, as it gives the overseers a line on the amount of defective work each operator is handing in. This feature alone is one of the most important points in the manufacture of hosiery.

The mending should be done as neatly as possible. Great care should be taken in selecting the help for this department. Only the neatest and brightest should be selected. The scale of wages should be such as to make the work sought after, instead of undesirable, as we find in most mills. In starting a new mill it is essential that this department be well taken care of at the start as a new mill always turns out a greater percentage of seconds than an old one. In such cases a few experienced menders should be secured to teach the new help to do the work properly.

Production of Weaving.

Editor Textile World Record:

In a weave room on print cloths should there be any falling off in production in the darker parts of the room? Hampton (1039).

In nearly every weave room there are light and dark places, but as far as the production goes, the same amount should be obtained from one loom as from another. We know that all weavers are looking for the best looms and the best light. If "Hampton" will watch the weavers in the dark places he no doubt will find that the weavers will keep their looms running just as well as in any other part of the weave room, although the quality of work may not be so good and it is done with greater strain on the weaver.

It might be well to have the lights arranged so that the dark part of the room can be lighted without having to light the rest of the room. Another way is by getting the weavers in this part of the room to run six looms instead of eight or ten. In every mill there are weavers who do not care to have so much work and are ready to take less looms, but still want to get off a good production. There is no excuse for not getting as much from one loom as from another. It is advisable to put the best running work on the dark looms.

Overseer.

Sizes of Sweaters.

Editor Textile World Record:

Can you give us the correct sizes of sweater coats? Manufacturer (1045).

Following is the scale of sizes used by the leading manufacturers of these goods:

	34	36	38	40	42	44	46
Body Length	25	26	27	27	27	28	28
Body Width	14	14	15	16	17	18	19
Length of Sleeve	17	18	20	20	21	21	22
Armhole	9½	9½	9½	10	10	10½	10½

Fillmore.

KNITTING DEPARTMENT.

**For Knitting Mill Machinery, Equipment and Supplies, see pages 236 to 253.
Also Buyers' Index.**

THE KNIT GOODS SITUATION.

At the time of this writing, January is drawing to a close and yet the market condition that was anticipated a month ago has failed to materialize. At that time it was known that stocks in the hands of jobbers and retailers were low, that it had been impossible to supply the demand for goods during the latter months of 1908, and all indications pointed to a short selling season and to the probability that by this time a number of manufacturers could say that they were sold up; but buyers have failed to show the eagerness in placing orders that was looked for and they delayed long enough to cause a few manufacturers to make some concessions in prices which has resulted in a general loss of confidence in prices that are being asked on nearly all lines. This condition was brought about principally by the action of the manufacturers of men's fleeced goods, when they changed their prices from $3.50 to $3.37 1/2 on 13 pound standard goods.

From a condition of the market that was unmistakably in favor of the manufacturer, it has developed into a buyer's market, pure and simple. They are now looking for a lower price than $3.37 1/2 on standard fleeces and one buyer was heard to reason it out like this: "Yarns are now about 3 cents a pound less than they were a year ago when the price was $3.65, and as it takes 13 pounds of yarn to make the goods, amounting to 39 cents per dozen, should not the price now be $3.25?" We leave it to some of our manufacturing friends to answer the question. Certain it is that buyers are holding off, although they must necessarily buy goods, and to an uninterested observer, it looks to be simply a matter of how long the manufacturers will stand pat, as the buyers must come to him sooner or later.

Ladies' carded yarn ribbed goods have been held fairly firm at $1.75 for 6 pound and $1.90 for 7 pound, but one New York State manufacturer has recently been quoting 7 pound at $1.85. This is a garment made up of slightly less expensive trimming than has been used on this class of goods generally.

Another exception to the above is the line of goods made by Robert MacKinnon & Co. who show both 7 and 8 pound weights made of their so-called waste yarn at $1.85 and $1.95 in peeler color and $1.95 and $2.05 in the white. These two garments are in a class by themselves and other State manufacturers do not call this a competing line on which they must meet prices.

The coming season promises to be one in which there will be a great quantity of bleached goods used. All manufacturers of 25 cent grades have installed bleaching plants and are asking 10 cents more per dozen for white than for peeler. Opinions as to the proportion of bleached goods wanted run from 40 to 70 per cent.

Last season the Utica Knitting Co. made their peeler color Vellastic goods of a yarn that had been bleached and tinted. This made a very clean looking garment, very much improved in appearance from the goods that had been made in previous seasons, but there was some complaint of their hardness and inelasticity, and for 1909 they have decided to make the goods from semi-combed yarn which gives them a more lofty touch.

The Regal Textile Co. are also making the same class of goods, but on different machinery which makes a different stitch, and they will also make their garment from a specially prepared yarn under the Regal brand. Both of these lines are held at the same price as last season, namely, $3.62 1/2 for ordinary and $4.00 for extra sizes.

Full combed peeler goods, weighing from 7 1/2 to 8 pounds are being shown by several manufacturers, some as low as $3.25. Nevertheless those manufacturers who are

making 8 pound goods at $3.50 claim to be taking a good volume of business. The La-Tosca Knitting Co. is one concern that claims to be about sold up for 1909. They make a line of ladies' combed peeler and carded bleached vests and pants at $3.50; also a line of ladies' combination suits at $6.75, and a line of children's combed yarn ribbed goods at $1.25 on 16 inch, rise 25 cents, less 15 per cent. They have added this season ladies' worsted ribbed white and grey vests and pants at $7.00 on which they have taken some good sized orders.

The Avalon Knitwear Co. are asking $3.50 for their line of ladies' peeler and bleached combed vests and pants, and $6.75 for their suits. These are trade-marked goods and jobbers are obliged to agree to $4.25 for the vests and pants and $8.50 for the suits.

There is an increasing demand for men's merino, wool and worsted ribbed goods to sell at $1.00 a garment and upward, and some exceptionally good values are shown this season at the starting point. The Fuld & Hatch Knitting Co. have a silver grey worsted ribbed shirt and drawer at $7.50 that is very attractive to many buyers. It is made with grey woven cloth front on the shirts; also with cuffs and Cooper collarette neck. The drawers have many rows of stitching on the band, giving the appearance of a high priced imported garment.

Wright's Health Underwear Co. show a grey merino line with grosgrain silk front on the shirts that is excellent value at $7.12 1/2.

H. E. Bradford & Co. have a new buff worsted rib at $7.50 regular that has the appearance of $10.50 lines that were sold last season. It is a lighter weight, however, running only about 11 pounds to the dozen.

HOSIERY.

Buyers in general are governed in placing their orders for next fall delivery by almost the same degree of conservatism as when placing their orders for the spring of 1908. In place of buying up to their capacity and sometimes beyond as was their custom for several seasons, they are now leaving lots of room for duplicate business. In consequence, manufacturers are hustling for orders and will be compelled to send their men over the same territory two or three times.

Among the few exceptions are to be counted the makers of low priced ribbed-top fleece lined cotton hose. Nearly all the leaders in the manufacture of this class of merchandise have booked all the business that they care for and many lines have been withdrawn altogether. Some others are withdrawn as far as new business is concerned, though they have left open room for a certain amount of duplicates.

Prices on these lines are the same or slightly higher than they were a year ago, or to be more accurate, than the prices at which they were billed, which prices were in nearly all instances lower than the opening ones. Prices on full fashioned and the higher grades of seamless fleece-lined, heavy cottons, wools and cashmeres of all grades, are slightly lower and the volume of business done on them will hardly have a tendency to advance them.

The popular impression is that the demand on heavy goods both cotton and wool is gradually becoming smaller each year, and it is a fact that retailers are now selling during the winter season, even in cold climates, many more medium and light weight cottons and lisles, than they formerly used to. The one line that seems to retain its old selling standard is children's worsted and cashmere ribbed hose. Of these, there is an apparent shortage every season.

An item in half hose on which there appears to be a strong competition for supremacy is a fine gauge cashmere of medium weight at about $1.75 and many very desirable numbers are being shown at this price or slightly lower.

Some makers of low priced cotton hose report being sold up entirely until July, and to be booking large orders for later delivery than that. The prices will be about the same as those prevailing for spring. Duplicate orders on spring lines have been very satisfactory and mills in general have enough orders on hand to enable them to run full time for many weeks to come. Buyers who delay placing their duplicate orders on low priced cotton hose are, it is said, making a mistake.

DOUBLE PRODUCTION FOR RIBBERS.

James Taylor, 121 Arch St., Philadelphia, is bringing out an attachment for circular rib knitting machines which doubles the production of the machine without increasing the belt speed. It is done by simply revolving the cylinder and dials in opposite directions simultaneously so that twice the number of stitches are knit as when either the dial or the cylinder is stationary. The attachment is readily applied to various makes of ribbers and at comparatively small cost enables double the product to be turned off without increasing the machinery.

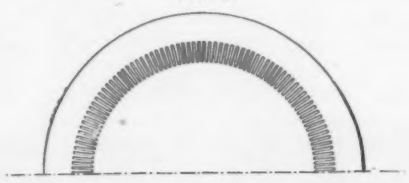
Machines equipped with this double acting attachment may be seen in operation at 121 Arch St., Philadelphia. An underwear circular body machine is also equipped with the attachment, which seems to work equally as well as on the ribbers. Mr. Taylor invites skeptical manufacturers to witness its operation and subject his claims to the test of both weight and measure. The new parts are all built on the interchangeable plan, which is an important feature. Patents have been secured in the United States and foreign countries.

AN IMPROVED KNITTING MACHINE.

Fig. 1 is a plan showing part of an improved needle cylinder, which has been recently patented by Harry A. Houseman, and assigned to the Standard Machine Co. Fig. 2 is a vertical section of the cylinder showing the needles in and out of action. In machines now in use when the needle is moved out of action it moves in at the bottom; where the needle rests against the needle cylinder the hook of the needle moves outward toward the yarn carrier and has a tendency to strike it. The inventor of the new construction states that this is detrimental to good knitting, as it tends to throw the yarn away or out of alignment with the active needle next to the inactive needle. This necessitates a fine adjustment of the yarn carrier. In the present combination the needle moves in the opposite direction, the point where it rests on the needle cylinder acting as a fulcrum, the hook of the needle, if anything, is thrown away from the yarn carrier and carries the yarn which is held around the inactive needle into the hook of the active needle next to it.

In the ordinary combination the needle moves toward the yarn carrier and thus carries the stitches which are already made toward the sinkers. When the needle is out of action the sinkers place a strain upon the stitch, and it requires a close adjustment to prevent cutting thereby. In the present

FIG. 1.



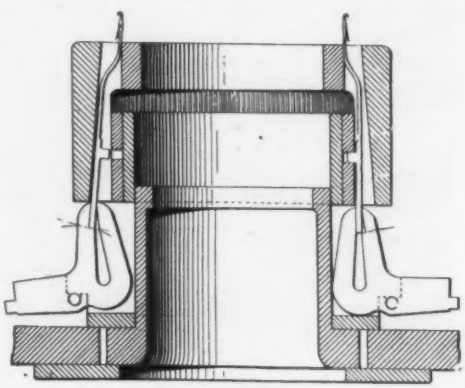


FIG. 2.

combination the needles moving in the opposite direction carry the stitch away from the sinkers so that no strain is placed on them. Further, in the old construction the shoulder of the lever travels away from the needle and is made of peculiar shape to maintain operative connection. This requires a very fine adjustment. In the present combination this is not required, as the shoulder of the lever and the end of the needle work towards each other and come together without friction. Finally, the motion of the needle lever is, in the new machine, less than in the old one, and therefore a fine adjustment of needle lever cams is done away with.

THE MANUFACTURE OF BRAIDS IN THE UNITED STATES.

BY FERDINAND THUN.

(Continued from May, 1908.)

LACE MACHINES.

In the preceding articles on this subject a number of lace patterns have been illustrated and the four, three and two thread lace machines have been described. These laces were principally of the cotton and linen lace class used as trimmings for white goods, such as undergarments and lingerie. The same patterns are also quite frequently made for dress trimmings and either natural

FIG. 125.

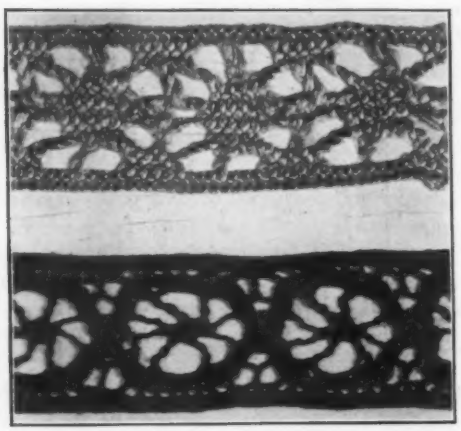


FIG. 126.

or artificial silk is employed as the preferred material.

Fig. 125 shows a lace braid made on a ten line, two thread lace machine. The material is artificial silk, and the pattern a very simple one.

Fig. 126 is a dress trimming made on a twelve line, two thread lace machine. The wheel pattern which forms a characteristic of this design is produced by two gimps braided into the fabric in such a way as to form circles.

Fig. 127 illustrates a sixteen line, two thread lace machine of the so-called two plate type. This style of lace braiders is particularly adapted for making dress trimming braids, such as have been illustrated in the preceding patterns. Each section of this machine consists of two plates only, and it will be noticed that each of the bars of the resulting fabric will consist of a soutache, as the carriers, while confined on the sectional courses, move in a figure eight. Each of these sectional courses consists of one circular portion and one circular portion with horseshoe extension. The advantage of this arrangement for dress trimming braids is that it prevents putting twist into the individual threads. The right and left rotations of the carriers exactly balance each other, whereas on the three plate system of machines the rotation of the carriers on each section is out of balance as to right and left twist, because there are three gears, of which two run in the same and only one in the opposite direction. In patterns using gimp and other heavy materials, this was a disturbing factor which led to the construction of this type of machines.

Fig. 127 shows the entire run of the machine as nearly circular as the horseshoe extensions will permit. This construction was chosen in preference to the compact zigzag arrangement, shown in connection with Figs. 119, 121 and 123, because it was found that machines with this arrangement of the course could run faster on account of the reduced up-and-down movement of the tension weights in the carriers, there being less slack thread to take care of. The only disadvantage of this arrangement is the increased size of the machine, which is about fifteen to twenty per cent. larger than the same machine with the compact zigzag course. The larger sizes, such as twenty and twenty-four line machines, are for that reason built with the compact zigzag courses, but otherwise on the same principle.

Fig. 128 is a lace braid made on a sixteen line, two thread lace machine. The irregular scalloped edge of the braid is obtained by the use of a device known as a revolving mandrel the operation of which is as follows: The two edges of the braid are connected by means of a soutache connecting section, changing the whole from a flat to a tubular fabric. This tubular fabric closely hugs a steel mandrel, the base of which extends through the bottom plate of the ma-

chine and which is adapted to be rotated. This rotating is done by means of intermittent cams to produce the differently curved edges of the finished braid. The soutache connections are afterwards cut away and the short ends of fibers are removed by brushing.

Fig. 129 is a bi-circle braider having one of these soutache connections built in. It will be clear from this illustration how, by means of this auxiliary run, the edges of the flat braid are united and a tubular construction of the braid is obtained, all for the purpose of forming the braid around a mandrel, which by rotation will give the braid the desired curved contour.

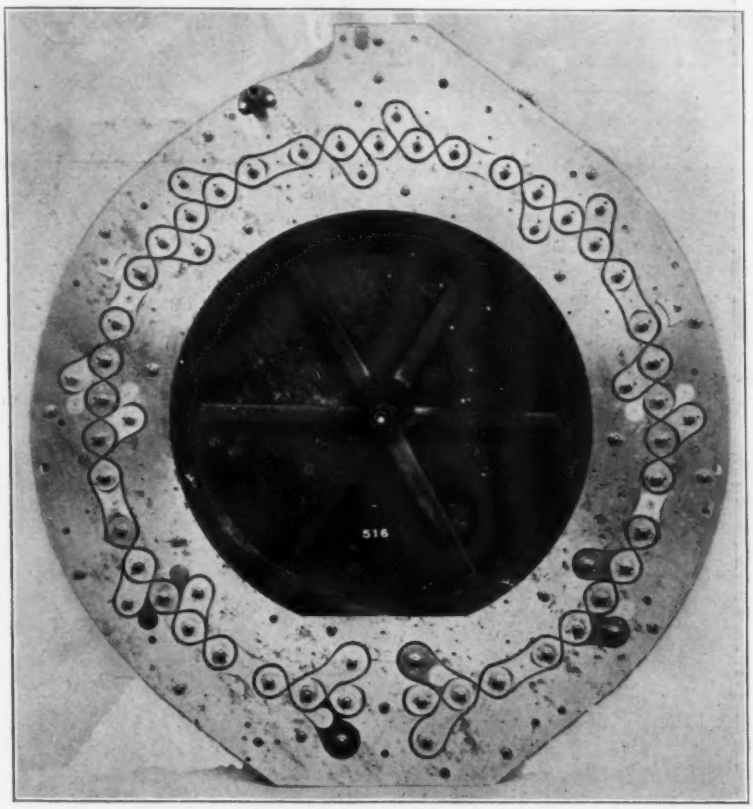


FIG. 127.

SINGLE THREAD LACE MACHINES.

As will be seen from the foregoing illustrations of the various braided laces and the descriptions of the machines upon which they are produced, a very large and almost unlimited number of patterns can be obtained. Yet this class of machines has one limitation, making it impossible to copy all the patterns of hand-made lace. This limitation consists in the necessity of all the carriers moving all the time. This limitation has been removed in the single thread lace machines, which are highly complicated machines provided with means for causing any of the carriers to stand still and remain disengaged from the propelling action of the gears for such a length of time as may be determined by the jacquard pattern mechanism.

Figs. 130, 131, 132 and 133 illustrate four patterns made on single thread lace machines. These represent perfect imitations of hand-made laces, and they are generally known among the trade as hand-made laces. This class of laces may safely be called the acme of perfection in the art of machine braiding.

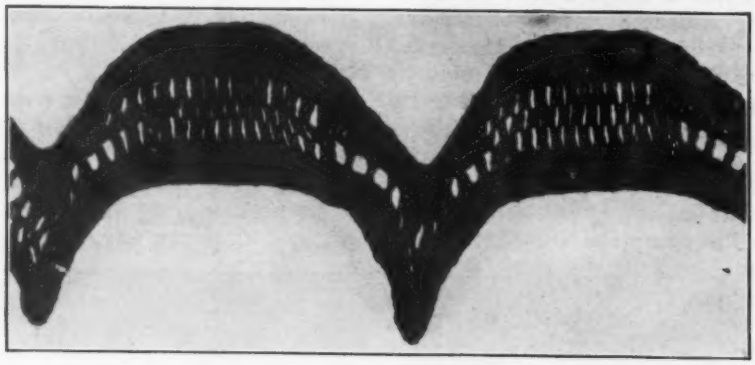


FIG. 128.

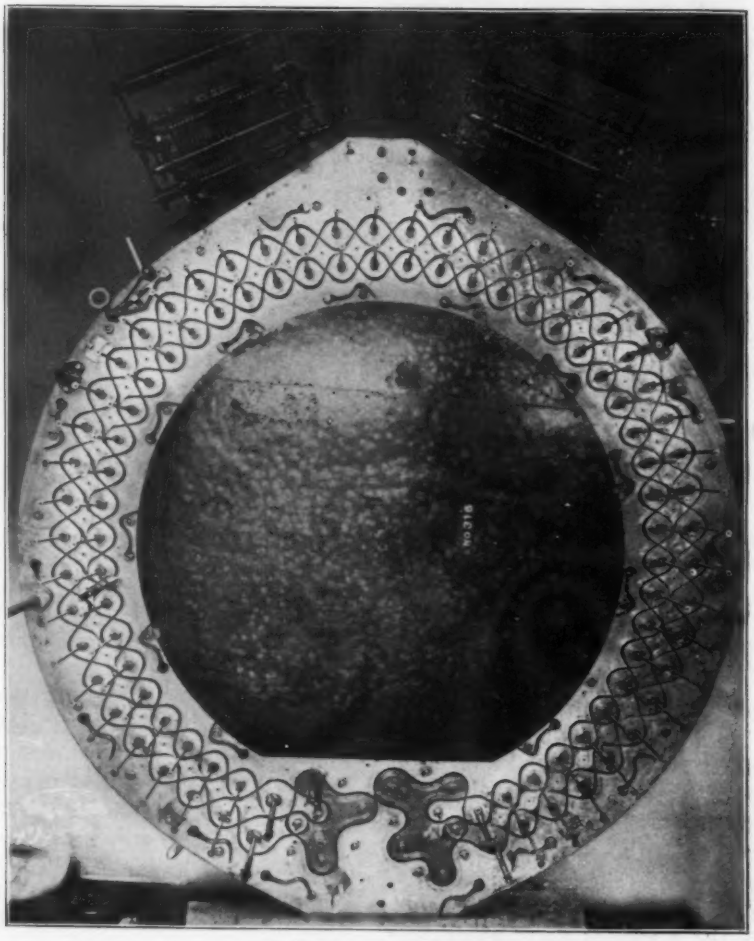
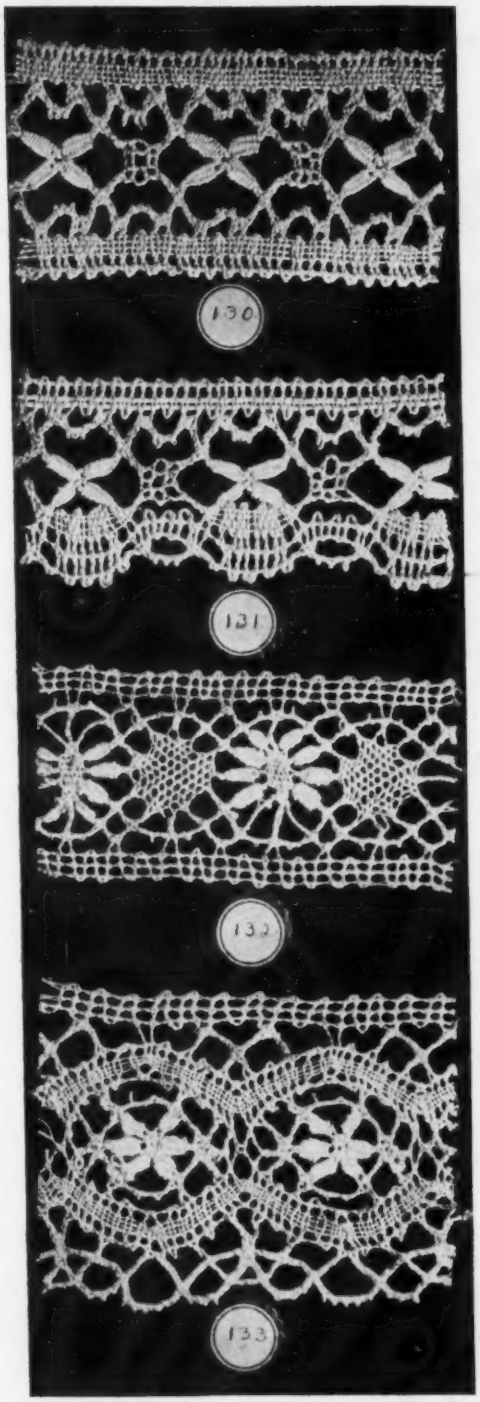


FIG. 129.



FIGS. 130, 131, 132 AND 133.

The operation of the machines producing these laces is, in fact, an exact duplicate of the hand operation as far as the manipulation of the spools and the crossing of the threads is concerned. Instead of the cushion with pins, which the makers of hand-made lace use to determine the pattern, the jacquard mechanism is utilized to govern the travel of the bobbin carriers. At the point of braiding, sinkers or beaters, operating along similar lines as the crown beaters illustrated in Fig. 28 of a preceding article, assist the tension of the individual threads in giving firmness to the fabric. On account of the intermittent movement of the bobbin carriers,, the production of these machines is usually small and ranges from 12 to 40 yards per day, according to the pattern. On account of this circumstance and of the fact, resulting from it, that a considerable number of these machines are required in order to make these laces on a commercial scale, this industry has so far been restricted to a few large concerns operating a great many machines, and up to this writing laces of this character are not manufactured in the United States.

LACE AND BRAID TRIMMINGS.

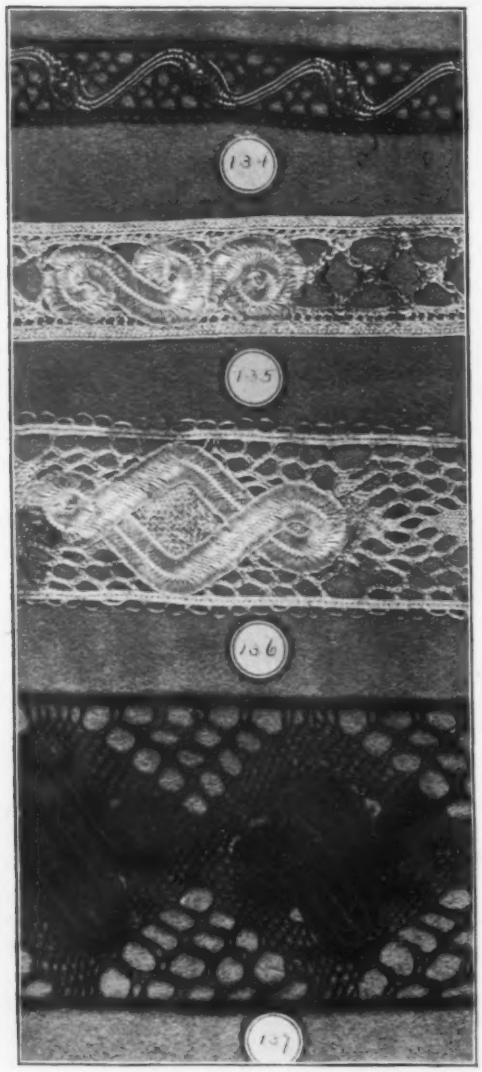
In the preceding articles I have described a great many braid products from the simplest to the most elaborate patterns and have shown how they are made. I will now illustrate a few trimmings composed chiefly of braids and advanced beyond the stage of a single braided fabric by sewing together several braids or by sewing braids as ornaments on strips of netting or veiling.

Fig. 134 shows an eight line, three thread lace made of black artificial silk with a serpentine black and white figure sewed on the lace background. This black and white braid consists of a small tubular made from artificial silk, and the wide portions thereof are produced by loose braiding resulting from the use of an intermittent take-up on the tubular braiding machine.

Fig. 135 shows a white trimming, the foundation of which is an artificial silk lace made on an eight line, four thread lace machine. The figure sewed on at regular intervals is made from white artificial silk featheredge braid.

Fig. 136 shows a twelve line white artificial silk lace made on a four thread lace machine. The figure design consists of the same featheredge braid shown in the preceding illustration.

Fig. 137 is a sixteen line lace made on a

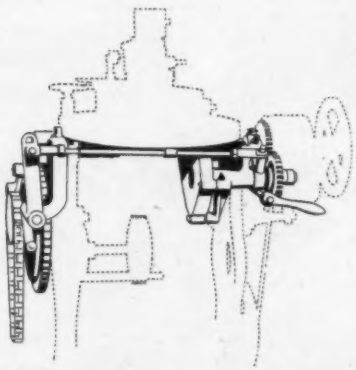


FIGS. 134, 135, 136 AND 137.

four thread lace machine from black artificial silk. The figure design consists also of a featheredge braid made from the same material.

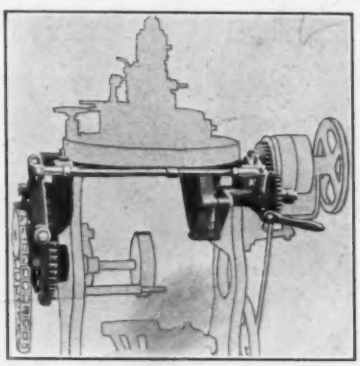
ATTACHMENT FOR CIRCULAR RIB KNITTING MACHINES TO INCREASE PRODUCTION.

The accompanying illustrations show the automatic circular rib knitting machine attachment which is being introduced by the Climax Machine Co., 1753-55 North Howard St., Philadelphia, for which exceptional



claims are made. In many instances they are guaranteeing an increase of 33 per cent. or more over the present production without additional cost for labor, power, belting or shafting.

Owing to the form of knitting the welt, it is customary and in most cases necessary to



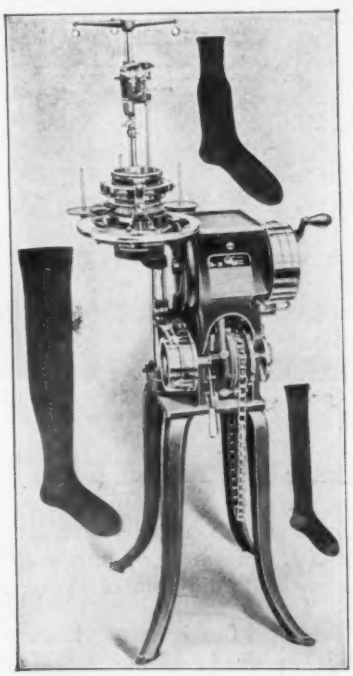
run knitting machines at standard fixed speed. With this automatic attachment the speed is doubled after or between the knitting of the welts and this is the real principle on which they base their claims as mentioned above.

We are informed that they are equipping

machines in many important mills with this attachment with the understanding that they are to be tried out to demonstrate the truth of their assertions and to show that with this attachment an increased output can be obtained from machinery already in use.

1909 MODEL OF GEO. D. MAYO AUTOMATIC KNITTER.

The new 1909 model of the full automatic knitter built by the Geo. D. Mayo Co. of Laconia, N. H., has an important feature in



THE MAYO AUTOMATIC KNITTER.

the self cleaning sinker head which prevents sinkers from clogging up with dirt and lint, and assures that the fabric will always be of even tension and uniform appearance and that less seconds will be produced. It gives a very large production and also saves a very considerable loss of production, through the fact that the machines do not have to be stopped for cleaning every two or three weeks, as is the custom with other machines without this feature.

This new model has proved so attractive to knitting manufactures and they have booked such a large amount of business that it has been necessary to increase their large and up to date plant by the addition of new and improved machine tools, in order to meet the demands of their customers for prompt deliveries. The company claims to be now turning out the largest output of full automatic seamless hosiery machinery and its capacity will be materially increased by the addition.

Among orders recently received are those from Alden Mills, New Orleans, La.; Antietam Knitting Co., Hagerstown, Md.; Durham Hosiery Mills, Durham and High Point, N. C.; Better Sox Knitting Co., Fort Atkinson, Wis.; Union Mfg. Co., Union Point, Ga.; Madeira & Wanner, Fleetwood, Pa.; D. F. Kelchner, Fleetwood, Pa.; Chambersburg Hosiery Co., Chambersburg, Pa.; Zulu Knitting Co., Two Rivers, Wis.; Kalamazoo Knitting Co., Milwaukee, Wis.; Wellknit Hosiery Co., Harrisburg, Pa.; Industrial Hosiery Mills, Mohnton, Pa.; Rothsville Knitting Mills, Rothsville, Pa.; Wiscassett Mills Co., Albermarle, N. C.; Chicago Guarantee Hosiery Co., Chicago, Ill.; Robesonia Knitting Mills, Robesonia, Pa.; Allensville Hosiery Mills, Allensville, Pa.; Davies Hosiery Co., Reading, Pa.; Paramount Knitting Co., Chicago, Ill.; Phoenix Knitting Works, Milwaukee, Wis.; Pitman Mfg. Co., Laconia, N. H.; G. H. Tilton & Son, Laconia, N. H.; A. R. Kreider & Bros., Annville, Pa.; High Point Hosiery Mills, High Point, N. C.

KNITTING MILL NEWS.

Reports of new knitting mills, enlargements, improvements, changes, etc., will be found in the general mill news section of this issue under their proper head.

The greatest sheep-rearing county is Yorkshire, with nearly 1 3/4 million of sheep. Lincoln and Northcumberland each contain over a million, Devon and Kent over 800,000. The flocks of Wales number about 3 1/2 million, those of Ireland nearly 4, and of Scotland nearly 7 million.

New Machinery and Processes.

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to textile manufacturers. It is not a list of patents, but of improvements coming on the market. The idea being to present to our readers a systematic monthly record of new machinery etc., of interest to textile mill men.
We invite machine builders and others to send us such information for this department.

New Bleaching Process. Seamans & Halske, room 1559 Hudson Terminal Building, New York, are introducing a new bleaching process for cotton for which important advantages are claimed, particularly in the way of uniformity of product and reduction in loss of weight of 4 to 5 per cent. over the chloride of lime process.

Card Clothing. Bates & Robinson Machine Co., Lowell, Mass., have recently placed on the market a card clothing of improved construction especially adapted for the strippers of wool cards. Description of it appears in another part of this issue.

Automatic Seamless Fingering Machine. George W. Lindley, 5122 Wakefield St., Germantown, Philadelphia, is about to put on the market an automatic seamless fingering machine. An illustrated article explaining its merits will be found in a subsequent number of this journal.

Automatic Woolen Loom. Pearson & Spurr, Birstall Iron Works, Birstall, Leeds, England. An automatic loom for weaving woolen goods. The invention of J. W. Wray. The detector or feeler mechanism is placed in the shuttle itself. This attachment is in operation in England on looms running up to 100 picks per minute.

A New Friction Clutch. The Unbreakable Pulley & Mill Gearing Co., Ltd., West Gorton, Manchester, England. A friction clutch in which the pressure for driving is obtained by extension of spiral springs. When once put into gear the clutch is kept so by the continuous action of the springs, which can be adjusted to suit any required load.

Warp Twisting Machine. Hermann Gentsch, Glauchau, Germany. An automatic machine for twisting warps to be drawn through the harness. It is said to have given very good results where tested in Germany.

Mule Fallers. Oscar Schimmel & Co., Chemnitz, Germany. An improved device for weighting mule fallers by air pressure.

Pile Fabrics. August Zinth, Bruehl, near Cologne, Germany. An improved loom device for forming a filling pile.

Reed Straightener. Paul Rossi, Bludenz, Austria. An apparatus for straightening bent reeds which is said to have given very good results.

Loose Reed. Leopold J. Michalczewski, Lodz, Russia. An improved method of constructing and attaching loose reeds to looms. It has been introduced into a number of Lodz mills.

Weighting Mule Fallers. Joseph Schmitt, Verviers, Belgium. A method of weighting mule fallers which is said to have given very good results, being uniform in operation and easily adjusted to different conditions.

Oiler for Loom Crank Arms. Diamond Lubricating Co., Ltd., Manchester, England. An automatic oiler for the crank arms of looms, obviating the need of frequent oiling by hand.

Grid. George Krall, Muelhausen, Germany. An improved grid for cotton beaters and similar preparatory machines.

Figured Weaving. Textile Appliances, Ltd., Glasgow, Scotland, have recently perfected and placed on the market an electric system of figured weaving which is described in this issue.

A NEW CLOTH DRYING AND CARBONIZING MACHINE.

A machine, shown at Fig. 1, for drying and carbonizing cloth, new in this country, but which has long been in successful operation in European mills, is being introduced to the American trade by Schuchardt and Schuette, 90 West St., New York. Fig. 2 is a sectional view; Fig. 3, a ground plan. This machine consists of three different chambers, A, B, and C, between which are placed the heating chambers, a and b. The chambers, A and B, are used for the preliminary drying of the goods, while chamber, C, is used for the carbonizing. The goods are let into the drying chamber, A, through a slot which is packed specially to exclude the air as much as possible.

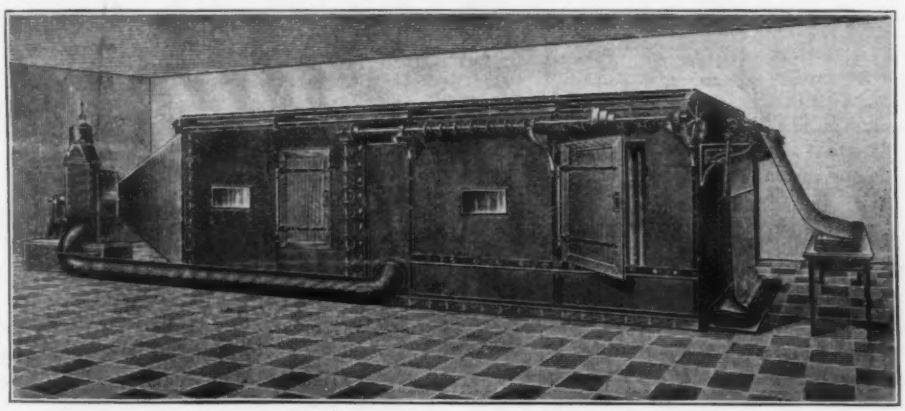


FIG. 1.

The goods enter the chamber, A, from below, and pass horizontally over eight pairs of rollers. They are then let into drying chamber, B, after passing the heating chamber, a. The goods enter the drying chamber, B, from below, traverse the same in a horizontal direction by means of eight pairs of rollers, and after passing the heating chamber, b, enter the carbonizing chamber, C. The goods traverse this chamber, C, in vertical windings, and leave same through a slot which is carefully packed so as to exclude the air, and are then piled up in front of the machine.

To facilitate the handling of the goods and the running of the machine as much as possible, the goods to be carbonized are piled in front of the machine, and at the same place where they are piled as they come from the carbonizing chamber, C. The goods are consequently first carried over the whole length of the machine, and then enter the first drying chamber, A, at the back.

The dry air circulation in chambers, A and B, is produced by an exhauster, E, which is connected with the chamber, A, by a special suction opening. As the drying chamber, A, the heating chamber, a, the drying chamber, B, and the heating chamber, b, are connected, the exhauster sends the air current through the machine, entering at the heating chamber, b, and following the dotted lines, l, in Fig. 3.

The air is heated by steam pipes, which are placed under the heating chambers, a and b.

The exhauster has two pipes, S and S1; pipe S1 leads into the open air while pipe, S, is run back into the hot air chamber, a, by the pipe connection, r. Both pipes are provided with dampers, in order that the proportion of the air emitted and the air returned can be regulated. Care should be taken here that as much air is drawn out through the pipe, S1, as there is fresh air brought into the machine through the heating chamber, b. In this way a circulating current is produced in the drying chamber, A, and heating chamber, a, which is continually renewed by the fresh air from the dry-

ing chamber, B, and heating chamber, b. As the air returned through pipe, S, and pipe, r, has to enter the lower part of the heating chamber, A, the dry, fresh air must necessarily circulate through the higher or upper parts of the drying chambers, B and A, respectively; consequently, the ceiling of the machine is always surrounded by dry air,

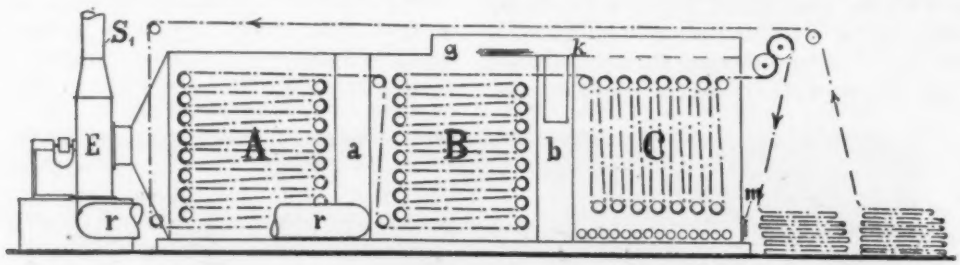


FIG. 2.

thus preventing the condensation of the evaporated water; consequently no drops are formed. To prevent condensation, the wet goods enter the drying chamber, A, from below, and the gradually drying goods are moved towards the top. The second drying in the drying chamber, B, is also done from below towards the top; as this chamber is supplied continuously with fresh air, this air is not saturated with condensation, and consequently is able to absorb considerable moisture.

The carbonizing chamber, C, into which the goods enter in a perfectly dry state, has a heating system of its own on the bottom, so that hot air is continually circulating to the top. Carbonizing chamber, C, is connected with the drying chamber, B, by a channel or flue, k; the exhauster produces an air current by means of this flue, which can be regulated by a damper, g, as shown in Fig. 2. This flue serves a double purpose. In the first place it enables the operator to change the temperature quickly; and in the second place, makes it possible to draw off through this flue, k, the harmful acid vapors which are forming in the carbonizing chamber, C. As the air drawn from the carbonizing chamber, C, is let through the drying chambers, the heated air of chamber, C, is again used to help the drying process.

In order that this machine can be used as a drying machine for neutralized or washed goods, the carbonizing chamber is arranged so that it can be perfectly connected with the drying chamber, B, and the circulating

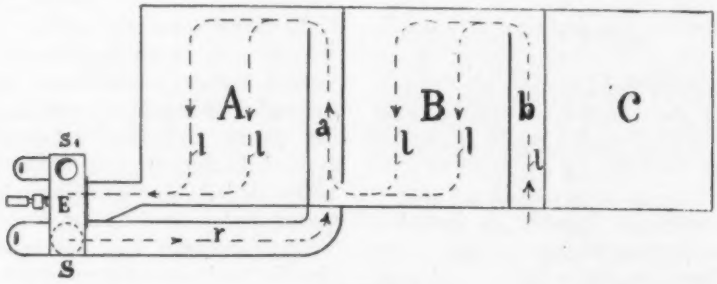


FIG. 3.

air currents. In this case the flue, k, is opened completely, as well as the slide, m, in front of the carbonizing chamber, C. In this way an air current and regulation of temperature is produced in the carbonizing chamber, C, for the ordinary drying of goods. If the carbonizing chamber, C, is then to be used for carbonizing again, it is only necessary to put back the slide, m, and regulate the flue, k. The necessary tem-

perature will then be produced in a very short time.

This machine is well arranged and will handle the goods safely and economically. The machine can be easily operated by one man, as the goods enter and leave the machine at the same end.

The drying of the goods is done at a medium temperature in a strong air current, using a combined circulating and fresh air system. The builders state that the amount of steam used for heating the machine is not very large, as through the circulation from the drying chamber to the exhauster and from the exhauster to the heating chambers, and from the heating chambers again to the drying chambers, the best use is made of all heat units. On the other hand, on account of the constant admission of fresh air and the drawing away of damp air, the condensation in the interior of the machine is prevented. The ceiling of the machine is double and comes in contact with hot fresh air only.

Another advantage claimed for this machine is that the carbonizing chamber is connected with the exhauster by the flue, k, so that the acid vapors can be expelled. The temperature in this chamber is regulated through a separate steam valve and also through special air slides to produce a faster or slower change of the air. The temperature can easily be regulated between 120° and 300°. Through the slow but continuous air current from below towards the top the hot air is circulated uniformly through all the openings of the vertical layers of cloth, which insures a quick and absolutely uniform carbonization, as the goods are not subjected for a long time to great heat, which is a great consideration with woolen goods. The machine is well built. The drying chambers are heated by a continuous wrought iron pipe, so that the interior of the machine has no flanges or screws. The heating apparatus in the carbonizing chamber is also arranged so that leaks in the interior of the machine are prevented. Further information can be obtained on application to the American agents.

England exported goods valued at $141,656,437 during November, 1908, a decrease of $32,633,738.46 as compared with last year.

THE CARVER SYSTEM OF FIGURED WEAVING.

The Textile Appliances, Ltd., of Glasgow, Scotland, have perfected a system of figured weaving which offers important improvements and economies as compared with the card system. The inventor, Dr. Thomas A. B. Carver, has delayed placing the mechanism on the market until it has been thoroughly tested under working conditions and every defect remedied. Dr. Carver will be remembered by our readers as the inventor of the Sentinel electric warp stop motion which was introduced into the mills of this country a few years ago. The following description of the new system of weaving has been furnished by Textile Appliances, Ltd.:

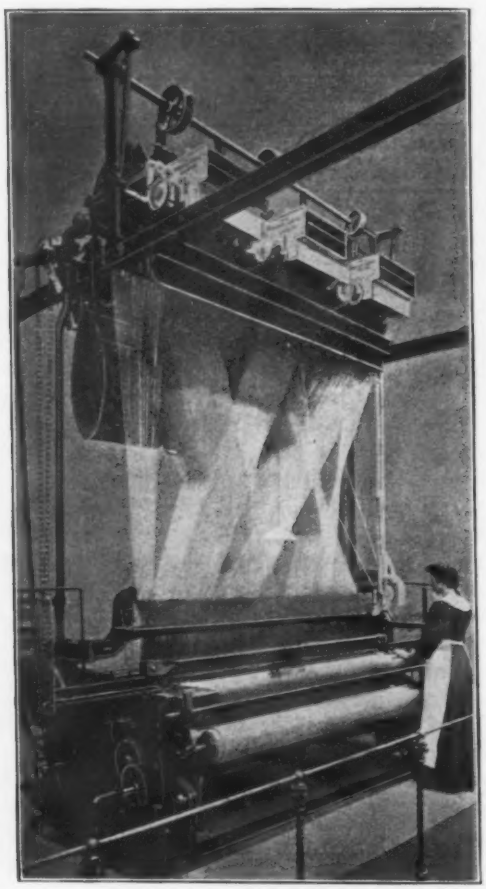
The Carver electric machines are applicable to cam and harness damask weaving, and to all other similar classes of figured weaving in which the jacquard needles perform only the selection between the pattern and the ground, the uniform twill or weave throughout the cloth being produced by the action of the Bessbrook machine itself, by pressure harness, or by any other auxiliary action in the loom. They enable the cloth to be woven without cards, the preparation, use and storage of which entail so great labor, inconvenience and cost.

They are attachments to the ordinary jacquard machines as working in the factory, and can be fitted to them in a few hours. They merely replace the card cylinders and do not require the disturbance of any other part of the loom, mountings or drives. A machine fitted to a napkin loom is shown in Fig. 1, and in Fig. 2 the complete equipment for an 8/4 loom with three 1,200-hook-600-needle machines are illustrated.

The figure is woven from a photographic copy of the design upon thin sheet metal, which controls the attachment to operate the jacquard machine in a manner identical with the action of the cards. For the standard 600-needle machine the width of the metallic pattern is 21 inches, the length depending upon the length of the design.

The design is simply a sketch, carefully drawn to the proper sizes, in opaque ink on transparent paper, and forms a negative

from which the metallic pattern is directly prepared by a photographic copying process, ready for the loom. This process is so simple that the metallic patterns can be cheaply and rapidly duplicated to any extent when several looms are required to weave the same design, on account of the



cheapness and rapidity of the photographic copying method. No extension upon point-paper is required, as the metallic pattern is prepared direct from the design as illustrated in Figs. 3.

Example of the comparative cost of preparing a design, for an 8/4 cloth, by the card method and by the Carver system:

An 8/4 cloth, woven by three 600 machines, with 112 shots of weft per inch and with 60 inches of unrepeated design, requires if one card is cut for every shot of weft, $112 \times 60 \times 3 = 20{,}160$ cards. To reduce the cost, however, of so great a number of cards, in practice one card is not cut for every shot of weft; and assuming, for example, that two shots are taken from each card, the number of cards required is 10,080. The painting for this number of cards would cost at the rate of 36 cents per square 100, $216. The cards at the rate of 84 cents per 100 would cost $84.84. For the electric cardless machines the design to give a better effect in the cloth can be prepared for less than $48, and the other plates, copied from it, can be made for $7.68. The total cost by the two methods is shown in the comparative statements, 1, 2 and 3, below.

This difference, however, does not represent the full saving, for the plates produce the same effect in the cloth as if one card were cut for each shot of the weft. The true comparison, therefore, is shown in statements, 2 and 3.

No. 1, Card Method.

2 Shots per Card.

Sketch and paintings from sketch	$216.00
10,080 cards at 84 cents per 100	84.84
	$300.84

No. 2, Card Method.

1 Shot per Card.

Sketch and paintings from sketch	$432.00
20,160 cards at 84 cents per 100	169.68
	$601.68

No. 3, Carver System.

1 Shot per Card Effect.

Design ready for copying	$48.00
Metallic patterns ready for looms	7.68
	$55.68

The cost of new designs is greatly reduced, as will be illustrated by the foregoing table of cost. The feed of the metallic patterns is arranged to give one movement at every pick of the loom, so that a one-card-per-shot effect is always secured. The usual practice in cam-and-harness linen damask is

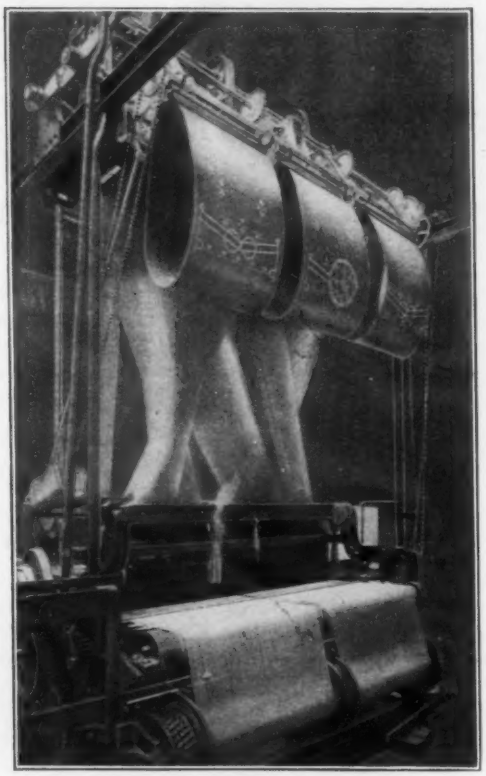


FIG. 2.

to take two, three, or more shots off one card, in order to save cards at the expense of the clearness of the edge of the pattern; on this account, with the electric cardless system, the cloth has a finer appearance. Further, as the movements in the machine are small and light in comparison with those involved in the usual card driving arrangements, the speed of the looms can be increased, and, in cross-border work, a saving of time over the usual card-shifting operations is effected by a simple arrangement, described later on, which affords the weaver complete control of the pattern, for either turning back or forward in the case of a wrong shot or pick-out, or for turning over the repeat. For these two reasons the production from the looms is increased, in certain cases as much as 20 to 25 per cent.

The weaver can turn the patterns in a few seconds from the cross-border to the repeat, or vice versa, by the hand-feed of the pattern indicator frame, illustrated in Fig. 4. The shaft which drives the patterns above is geared, through a chain, to a hand-wheel at the handle side of the loom, and the position of the patterns at any moment is shown by a narrow strap, punched with holes to form a chain, which in length is an exact du-

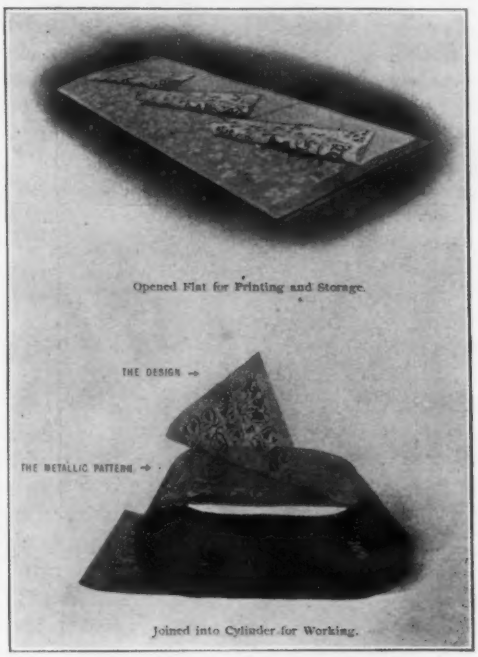


FIG. 3.

plicate of the pattern itself. Upon this strap the length of the repeat is painted in one color, and the border in another, a line marking the joint between them. As the patterns travel forward, with the weaving of the cloth, this strap moves forward at an exactly corresponding rate, and when the mark arrives at a stationary mark on the frame the weaver is notified, and turns the handle forward or backward, as the number of repeats desired in the cloth may require. By thus affording the weaver complete con-

trol of the patterns a saving of time and labor is effected, which is very considerable in those cases where the cross-border and repeat are punched on separate packs of cards, which require a special staff in the

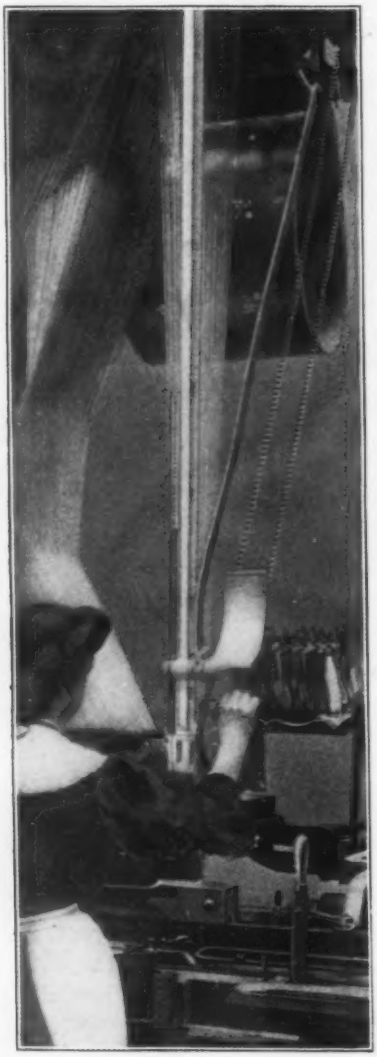


FIG. 4.

mill to shift them every time a change is made from one to the other.

Cloths of any shotting or length can be woven from the same patterns, because the amount of feed of the patterns at every pick is adjustable, to accommodate it to any number of shots per inch it may be desired to put upon the cloth. There is thus secured an advantage hitherto unattainable, for with

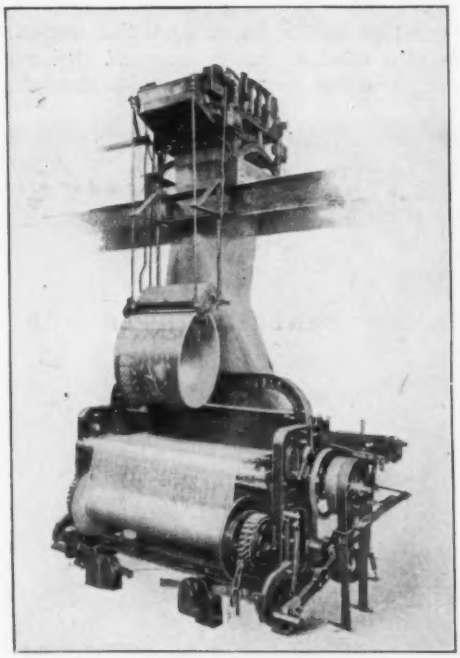


FIG. 5.

the card method the shotting of the cloth is confined to that for which the designs are drafted, any variation being within very nar-

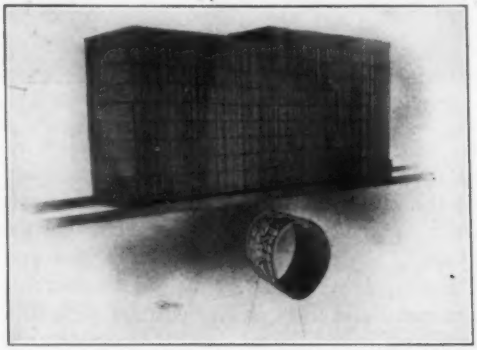


FIG. 6.

row limits, by varying the number of shots taken off one card.

A set of patterns can be changed in a few minutes, and thus the time at present involved in changing packs of cards is saved.

A pattern representing about 5,000 cards weighs but 5 pounds, and can be handled by one man with ease.

The metallic patterns do not obstruct the light in the factory. They hang, as shown in Fig. 5, entirely within the floor space of the loom itself and therefore need not be considered in the close arrangement of the looms. Storage space is dispensed with, the space occupied by 5,000 cards and by the metallic pattern corresponding to them being shown in comparison in Fig. 6. For storage, however, the plates are opened out flat as shown in Fig. 3.

IMPROVEMENT IN STRIPPER CARD CLOTHING.

An improvement in stripper card clothing has been brought out recently by the Bates & Robinson Machine Co., of Lowell, Mass., which is now being used successfully in a number of New England and Pennsylvania

mills with results that are said to be remarkable. The illustration shows the peculiar feature of this card clothing.

It is designed for clothing the strippers on wool cards, with the bent teeth pointing the same way as the teeth on the worker. The essential feature is the use of the card clothing on the strippers so arranged that bent teeth slant in one direction and straight teeth in the other direction from the surface of the roll. The straight teeth take the web from the worker and bring it down to the main cylinder, and the bent teeth point to the cylinder same as the worker does. The result in a duplex action by which the stripper acts also as a worker and thereby doubles the number of carding points, giving better carding and larger production through being able to card with the stripper.

There is no change made in the speed of the strippers. All that is necessary is to put on the clothing with the bent teeth pointed the same way as the teeth on the worker points.

Patent covering this feature was granted Dec. 15, 1908, to the Bates & Robinson Machine Co. A number of carders who have tried this new stripper clothing are most enthusiastic over it.

YARN TESTER AUTOMATIC POWER ATTACHMENT.

Henry L. Scott & Co., 225 Eddy St., Providence, R. I., have placed on the market an automatic power attachment for yarn testers which will convert any make or style of hand driven machine into an automatic power tester. It is well known that the only absolutely correct tests of the breaking strength of yarn are those made on power driven machines, as it is almost impossible with hand testers to make two tests under exactly similar conditions. This attachment is easily and quickly adjusted and can be driven from any point desired by a quarter inch round belt. It is simple and powerful in construction and should last as long as the machine. Pressure on a thumb lever starts it and after the yarn breaks it stops automatically and returns to proper position for reloading.

WASHING AND SCOURING MACHINES.

The Steel Roll Machine Co., 8 South Canal St., Chicago, builds a line of rotary washing machines which is particularly interesting to medium size knitting mills who are looking for machines of moderate capacity at a moderate price, capable of doing the work thoroughly.

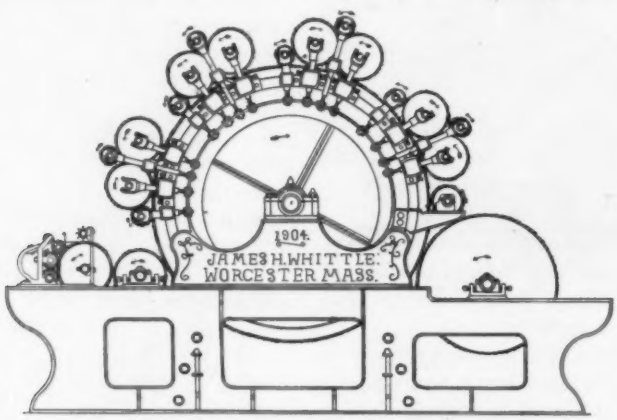
They build a metal shell power washer from 24 by 24 inches upwards. This is the same style of machine of which they have sold thousands to laundries and it is very popular with dyers, dry cleaners and in institutions and is suitable for use in washing and scouring knit garments. It has a perforated inner cylinder revolving in a water tight outside cylinder containing the scouring liquor. This inner cylinder has ribs projecting inside, which carry the goods upward as it revolves, dropping them back again into the liquor at frequent intervals.

The company also builds ironing machines for pressing knit goods without breaking the buttons, also portable dry rooms which can

be set up in convenient places. They are furnished in varying capacity and are fitted for handling work to advantage. Circulars descriptive of the different styles of their machines may be had on application.

THE HENDERSON DOUBLE WORKER CARD.

Nearly five years ago, in the issue of May, 1904, we gave our readers the first account to be published of the Henderson double worker card, which at that time had recently been placed on the marked by the James H. Whittle Co., Worcester, Mass. Since then the card has been installed in many mills in different parts of the country and has been subjected to the test of practical use under widely varying conditions. The results have been very satisfactory and many duplicate orders have been received.



THE HENDERSON DOUBLE WORKER CARD.

This card differs from the ordinary construction in the arrangement of the workers which are set in pairs, thus economizing space. The wool enters the card and is carried to the first worker and stripper in the usual way. This worker is run against the cylinder, as is frequently done in the ordinary card. The next worker, which is close to, but not in contact with the first one, is run with the cylinder. The stock is carried from the second back to the first worker by a slowly running stripper placed between and above the workers, and then passes back to the cylinder to be carded again. The stock carried past the first pair of workers by the cylinder, successively meets the other pairs of workers, at each of which the same process of carding and mixing is repeated.

By this arrangement the capacity of a card is greatly increased and a much larger production is made possible with an improvement in the quality of the roving. The success of the Henderson card is amply proved by its work in many mills at the present time, the following being a few of the testimonials received from users of the machines:

Draper, N. C., Oct. 12, 1908.

Messrs. James H. Whittle Co., Worcester, Mass.

Gentlemen:—Replying to your letter of the 8th inst. beg to advise that the 12 sets of Henderson Cards purchased from you are giving us entire satisfaction, both in strength of yarn, economy of waste and production.

Wishing you continued success with your machinery, we beg to remain,

Yours very truly,
A. C. Phelps,
Vice Pres. and Treas.

Stafford Springs, Conn., Oct. 9, 1908.

James H. Whittle Co., Worcester, Mass.

Gentlemen:—We are in receipt of your favor of the 8th relative to the six sets of your cards which you recently installed for us. Our ideas in regard to them are no different than when we ordered the last three sets.

They are getting for us a good production of good yarn with economy both as to waste and help. We are,

Very truly yours,
The Warren Woolen Co.,
A. I. Mitchell, Supt.

Lincolnton, N. C., Nov. 16, 1908.

Messrs. James H. Whittle Co., Worcester, Mass.

Gentlemen:—We wish to say that we have had your Henderson Cards in operation for several

months and our superintendent has found them far superior to any other card, inasmuch as we are getting more production, better quality of work, with more even roving and one-half the waste, than any other system of carding that he has operated (and he has operated all makes).

It is surely the coming card and no manufacturer is fully equipped for producing the best line of goods unless he has your system in operation, as the old system of carding is a thing of the past for economic production. The effect of good carding extends through all departments to the finished product.

This system of carding is simply wonderful on mixtures of different grades of stock. This is an unsolicited letter from us and shows our appreciation of your high standard machinery and may be used for publication, if so desired.

Very truly yours,
Eureka Mfg. Co.,
J. L. Lineberger, Pres.

Pittsfield, Mass., Oct. 26, 1908.

James H. Whittle Co., Worcester, Mass.

Gentlemen:—We have been using your cards now for something like two years and we are very much pleased with the results obtained from them.

Very truly yours,
Pontoosuc Woolen Mfg. Co.,
Henry A. Francis, Gen. Mgr.

Troy, N. Y., Oct. 9, 1908.

James H. Whittle Co., Worcester, Mass.

Gentlemen:—Replying to your letter of the 8th inst. we are pleased to say that the set of Henderson Cards we got from you about two years ago has given entire satisfaction. In regard to production and quality of work it has fully met all of our expectations.

Very truly yours,
Troy Knitting Co.,
John P. Nolan, Supt.

AT LAST-A PRACTICAL HEDDLE.

In every branch of industry there is a constant straining toward economy. Special machinery is brought into use for the purpose of turning a former waste into a source of profit; old machinery is abandoned, to be replaced with new machinery—either to increase the output economically or to obliterate some old expense entirely.

But it seems that man in his clamoring efforts to curtail expense, turns his attention to those departments where a vast saving can be made, instead of regulating the very small outlets, which collectively make great inroads on the surplus funds. This is true of any business.

In connection with expense, we might mention the old wire heddle as a "horrible example." No one knows better than the mill man the constant annoyances surrounding its use.

First, its life at the longest seldom exceeds a period of two years and during that time it often becomes necessary to remove heddles that have become worn or bent, and this operation is often attended with disaster to other heddles on the frame—not taking into consideration the time and labor involved.

To overcome these annoyances, the Steel Heddle Mfg. Co. have devised a heddle made from a single piece of flat steel. This heddle is made in sizes and grades to suit all loom purposes.

The firm is not a new one. They first began manufacturing the flat steel heddle ten years ago, and silk mills that equipped with these heddles at that time are still using the same heddles on their looms except in some very rare instances. Those who did use them did so without making renewals or changes. This alone is suggestive of a vast economy, when you take into consideration that in a like period five sets of wire harness would have been used and worn out.

The eye of the flat steel heddles is another factor of great advantage. Instead of being two pieces of wire twisted and soldered together it is stamped from a single piece of flat steel and has no corners to catch or break the thread. In the wire heddle the thread wears a groove in the soft solder at the corners of the eye and when a yarn of heavier count is run through there is often disaster as the heavier yarn becomes frayed or is broken altogether.

Besides the steel heddle need never be turned or shifted and when a change is necessary there is practically no delay or loss of time to the operator.

This is one of the small economies to which we refer but there is enough in the virtues of the steel heddle to commend it to every mill where a strict adherence to economic principles prevail.

The total amount of wool shipped from Uruguay from October 1 to September 30, 1908, was 95,401 bales, as compared with 82,405 bales and 75,792 bales for the two preceding seasons.

Dyeing, Bleaching, Printing, Etc.

RESERVE PRINTING OF IMMEDIAL COLORS.

BY DR. LOUIS J. MATOS.

The production of reserve effects upon cotton fabrics has always been a very interesting and fruitful field for investigation, and at various times results have been obtained that have had a far-reaching influence upon styles and effects. Of recent years, however, close attention has been given to the varicolored effects to be obtained by suitable combinations of widely dissimilar dyestuffs, for the purpose of securing contrasts that would at least be commercially available, and this has been obtained by the processes outlined below.

For the purpose of the present article we will consider only the colored effects contrasting with blacks, blues, greens, browns, and mode shades obtained by using the immedial colors, and which have been demonstrated by actual practice to be most suitable for the purpose.

Briefly the process consists of printing upon the cloth white or colored reserve compositions, which are fixed by drying and afterwards dyed in a foulard machine or jigger, the former type of apparatus being the most desirable.

WHITE RESERVE.

42 to 35 ozs. Dry Gum,

dissolved in

42 to 35 ozs. Water.

Then add

42 to 70 ozs. Chloride of Zinc in
30 to 20 ozs. Water.

Mix well and add water to make one gallon of paste. To this paste from 16 to 20 ozs. of zinc white or kaolin may also be added.

RED RESERVE.

This reserve is based upon the employment of Paranitranilin C, for which purpose the cloth is previously impregnated with beta-naphthol in the usual manner and drying. The reserve is prepared in the following manner:

42 ozs. Dry Gum,

dissolved in

42 ozs. Water,
42 ozs. Chloride of Zinc,

together with

35 ozs. Kaolin 1:1,

and after heating and mixing

3.5 ozs. Oxalic Acid.

The paste is now made quite cool, when

30 ozs. Diazo Solution

are added, well mixed, and

3.5 ozs. Acetic Acid.

Water is now added to make one gallon.

The Diazo Solution above mentioned is compounded as follows:

14 ozs. Paranitranilin C,
7.8 ozs. Sodium Nitrite, and
50 ozs. Chopped Ice for cooling,
32 ozs. Muriatic Acid 21° Be.,

previously mixed with

24 ozs. Chopped Ice,

the whole made up to one gallon with ice water.

The brilliancy of the red reserve depends upon the liberal use of ice and using every effort to have the gum paste also as cold as possible.

Blue and Violet Reserves are compounded with Chrome Violet M, Chrome Blue F, and Chrome Fast Blue F R with other dyes of this well known group. The following proportions are recommended:

3 to 14 ozs. Dyestuff,

dissolved in

28 to 11 ozs. Water,
80 ozs. British Gum thickening 1:1,

cooled, then add

3 ozs. Formic Acid (90%),

together with

3 to 7.8 ozs. Chromium Acetate,

20° Be, and a mixture of

21 ozs. Chloride of Zinc in
7.8 ozs. Water.

Mix well and add water to make one gallon.

YELLOW RESERVE.

For this purpose Anthracene Yellow B N is found desirable and may be shaded with other colors of its own group.

5.7 ozs. Anthracene Yellow B N,
61 ozs. Water,
35 ozs. British Gum Paste.

Mix well with the aid of heat, cool, and add

11.5 ozs. Chromium Acetate 20° Be,

together with

21 ozs. Chloride of Zinc, in
7 ozs. water,

well mixed, and made up to one gallon with water.

After printing with these colors the goods are dried in the usual manner, except that the chrome colors should be subjected to a previous steaming in a Mather-Platt apparatus.

The dyeing is done with any of the Immedial colors, the dyer being at liberty to make such combinations as he may desire, and for this purpose the following colors have been found quite useful:

Immedial Black N N G Conc.,
Immedial Black N B B Conc.,
Immedial Indogene G C L Conc.,
Immedial Sky Blue Powder Conc.,
Immedial Khaki D,
Immedial Green G G Extra,
Immedial Dark Green B,
Immedial Indone J B N Conc.,
Immedial Indone R Conc.,
Immedial Direct Blue B,
Immedial Yellow Olive G,
Immedial Cutch G.

These colors are conveniently divided into two groups, one dyeing from a bath containing sodium sulphide, and one from a bath containing caustic soda and some glucose or other equally effective reducing agent. The formula for the first mentioned group is as follows:

1.5 to 8 ozs. Immedial Dyestuff (according to shade),
2 to 13 ozs. Sodium Sulphide (Crystals).
3 ozs. Soda Ash,
3/10 oz. Monopol Oil,

to each gallon of dye bath.

Light shades are best dyed cold, while dark shades require an increase of temperature to 125° or 130° F. After dyeing in the foulard machine, the goods are well washed and soured by passing through a weak acid bath containing half an ounce of muriatic acid per gallon, then finally well washed and soaped.

Dyeing with colors from a caustic soda bath is done with the following ingredients:

1.5 to 8 ozs. Immedial Dyestuff (according to shade),
1.5 to 8 ozs. Caustic Soda Solution 40° Be,
3 to 6 ozs. Soda Ash,
1.5 to 8 ozs. Glucose (corn syrup),
3/10 oz. Monopol Oil,

to each gallon of bath. The glucose is proportional to the quantity of dyestuff used, and if a deficiency is used the complete chemical reduction of the dyestuff is not accomplished, and proper results are not obtained.

The proper development of the colors by the use of this "reduction" method also depends upon complete reduction being maintained during the dyeing, and upon complete oxidation after dyeing, but that no oxidation should occur during dyeing. With ordinary care, no difficulty will be encountered. The final operations consist of squeezing the cloth, steaming in a small Mather-Platt or other simple form of low-pressure steam box, then washing well, souring, rinsing and soaping.

For many classes of cotton prints this method of reserve printing is destined to occupy an important place, inasmuch as it en-

ables the manufacturer to avail himself of the well known advantages of the sulphur group of colors for effects that could be produced only by other more costly and less generally satisfactory methods.

DYEING AND FINISHING ORGANDY.

(From the Leipziger Faerber Zeitung.)

Organdy is a fine gauzy cotton fabric, coarser, however, than muslin. It must be very stiff and close when dressed, or, in other words, all the interstices must be completely filled with the size. Even today, in spite of the fact that stretching machines for organdy are on the market, the fabric is often stretched on small frames by hand. The reason of this is that experience has shown that an absolutely close finish is not obtained on the machines, at least with a single starching. The machines, too, are very expensive, so that small establishments, where capital, space, and power are not plentiful, prefer the hand stretching.

The tinting of organdy is chiefly effected by coloring the dressing, but black and grey are also dyed in the usual way. The jigger is not used on account of the difficulty of keeping the goods full width upon it, an essential condition with organdy. The best machine for this class of fabric is a hank-dyeing machine, such as is used for wool-dyeing.

For black a boiling bath is prepared with from 12 to 13 per cent. of logwood extract, 1 1/2 to 1 3/4 per cent. of quercitron extract, and 1/2 per cent. of carbonate of soda or levigated chalk. This bath must be rather short, with only sufficient liquid, in fact, to cover the goods after they have been pressed down in the vat. The object of the chalk or soda is to make the fabric soak more quickly and more uniformly. The goods are entered folded, but full width, and left overnight. Next morning they are lifted, drained for five or six hours, and developed in a cold bath prepared with 2 per cent. of sulphate of copper and 1/4 per cent. of bichromate of soda. After half an hour in this the goods are centrifuged, rinsed and dried.

For grey a weak bath is prepared with logwood decoction of extract, and the bath must not be short, as in the case of black dyeing. After working for about an hour, the goods are lifted and developed in a cold bath of ferrous sulphate of 1 1/2° B., somewhat neutralized with carbonate of soda. Ten minutes of this is enough, and the goods are lifted, centrifuged, rinsed, and dried.

The dressing is done on an ordinary starch mangle, as friction machines do not answer well with these thin fabrics. The pressing roller of the mangle should be light. The other apparatus necessary is a zinc-covered table with a rim about two inches high all around it, a drying room, and stretching frames. The table is usually about ten feet long by four feet wide. The frames are as long as the piece, say, from twenty to twenty-four yards. By bringing the goods in a double or treble layer, any length can be stretched on one frame, but it is best not to have more than one thickness, as several pieces are stretched one over another, and the more layers there are the longer the drying takes. The goods must be stretched perfectly flat, and with uniform tension throughout, and when the stretching is done by hand the work is usually done piece, by women. The heat of drying room makes the labor very fatiguing, and skilled hands can earn very good money. The following are two recipes for mixing:

Black.

Wheat starch (seconds)	120 lbs.
Potato starch	60 lbs.
Logwood extract	4 lbs.
Quercitron or fustic extract	3 lbs.
Tallow	2 to 3 lbs.
Nitrate of iron	9 lbs.

This mixture is stirred up with water to make 800 pounds (96 gallons).

Grey or White.

China clay	120 lbs.
Wheat starch (seconds)	90 lbs.
Potato starch	50 lbs.
Tallow	2 to 3 lbs.
Logwood extract (for grey only)	4 to 5 lbs.
Ferrous sulphate (for grey only)	1 lb.

These mixtures also make 800 pounds (96 gallons) of size, when boiled with the necessary quantity of water. In all three cases the

boiling must be gentle and not last more than a few minutes. As above stated, the upper roller of the mangle must not press too heavily. The goods, after being pulled through the mangle by the minder, are laid on the zinc-covered table, and worked by hand to equalize the sizing. If necessary, badly sized places are made good with more size, applied with a brush. In the drying room the frames hang vertically, the width of the frame being perpendicular to the floor. They are raised and lowered by pulleys.

CLAY FILLING AND BACK FILLING COTTON PIECE GOODS.

BY DULCIMER.

In filling cotton piece goods it is necessary to have a good deal of experience. The requirements of an ever changing market, the whims and fancies of the customers, call for changes all the time. The question of filling is not the only one that has to be considered. There is the desired feel of the goods, the special finish required, as to the brightness or dullness of the goods, and the increased weight, which in some cases amounts to 10, 20, 30, 40 per cent. or even more on low quality goods. It is of the utmost importance if it is desired to have the goods well filled, to adjust the machine carefully, have the weights arranged evenly, and the mixture on the goods carefully prepared and boiled. It is necessary to take into consideration the condition of the goods before filling. A few years ago I was employed in a place where they could not make any headway with the back filled goods; the cloth they were filling being 54 by 46, and 40 inches wide, 6.40 yards per pound and to finish 4.65 yards per pound and 37 inches wide after filling. The man in charge could not get good results. Imagine my surprise upon investigating to find he was damping the pure goods and calendering them heavily before filling. The result was that the goods being bright and flattened down would not take the starch. I told him not to calender them but to leave them as raw as possible. On that particular line I reduced the seconds 40 per cent.

It is necessary to calender some lines of cloth. Which require calendering will have to be learned by experience. There are many different ways and different mixings for filling cotton goods. There is the straight ordinary mangle finish, through clay, starch or chalk mixings. The mixture is put in the box and the goods passed through the mixture and mangle. There is another machine for filling goods called a friction mangle. This is a machine with two rolls. The bottom one in a box revolving in a mixture of starch, chalk, clay, etc. The top roll revolves much quicker than the bottom one. This machine is used on heavy mixings for low quality goods. When it is desirable to have the starch ground right into the goods, this is accomplished by the

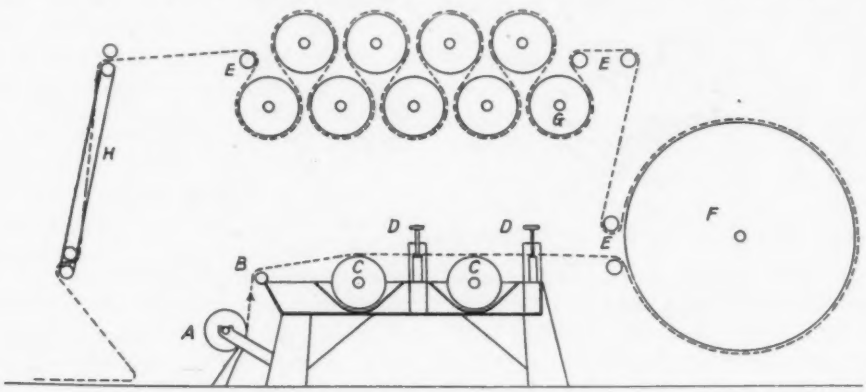


FIG. 1.

top roller revolving faster than the bottom one.

Another machine for the back filling of cotton goods is called a "Beta Dodd," shown at Fig. 1. This machine is used with light mixings. When a good back filling on a low

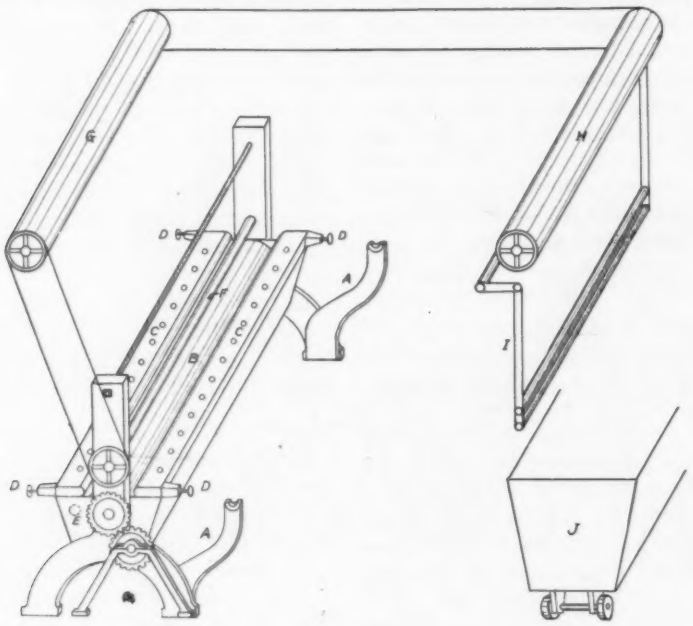


FIG. 2.

quality goods is desired, very good results can be obtained on these machines by having the experience, the right mixings and the machine adjusted properly.

Another machine for back filling and the one that is more commonly used, is the regular back filling machine, shown at Fig. 2. Fig. 3 is another view of the same machine elevated to show path of the cloth. This machine has only one roll revolving in the mixture. This roll can be made of wood, cotton, husk, rubber or any material desired. An agitator fixed behind the box to keep the mixture well worked up, and two doctors, one at the front and one at the back, are necessary. Some of the machines have the doctors oscillating, which gives a longer life to the roll and has the advantage of preventing grit marks in the cloth. The way the machine is built it can be adjusted to almost any class of work. The front doctor on this machine is the cleaner, while the back doctor is used to regulate the amount of filling put on the goods.

In order to be successful and produce good work it is absolutely necessary to have the machines well regulated, the goods in the right condition, the mixture of the right consistency and well boiled. If these instructions are carried out good results will be obtained.

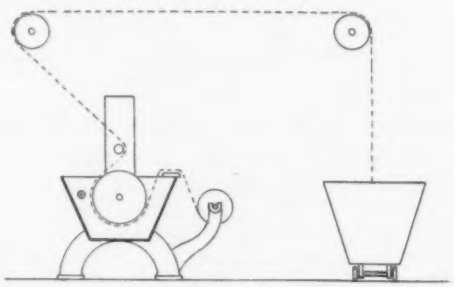


FIG. 3.

There are about 1,000 horses slaughtered in Chemnitz in the course of a year and the annual per capita consumption of horse-flesh in the town is 2 3/4 lbs.

FINISHING TEXTILES.

Valuable properties may be imparted to fibers by other than the physical processes of hot-pressing, steaming and lustring. By chemical treatment the processes of Knecht and that of Cassella for animalizing cotton, alter it so that it acquires the property of an animal fiber. Both deserve mention. By Knecht's process the cotton is submitted to the action of a solution of lanuginic acid and formaldehyde, then dried and steamed. Cassella subjects cotton for a long time under pressure to the action of ammonia. Treated by either process, cotton can be dyed with wool coloring matters, but as yet neither has become of practical importance.

However, the chemical processes by means of which wool and cotton acquire properties like those possessed by silk are of especial importance to the dyer. Long ago, in Mercer's time, the fact was noticed and published that when wool is acted upon by chloride of lime, it acquires among other properties, an increased luster and a hard, rustling handle, greatly resembling the scroop of silk. Towards the end of 1894 a knitting yarn appeared upon the market possessed of these characteristics, and it was quite obvious to those who had read and studied the subject, that the effect was principally dependent on the action of chlorine. Subsequent experiences have proved this to be the case. It was not very long before the knowledge of the production of this silk-like wool became common property; almost every dye house employed in dyeing knitting yarns took it up.

Many methods have been worked out for imparting the luster and scroop of silk to wool. Of these, chlorine water has been tried, while bromine or iodine have been used to replace the chlorine; but, after all, the best method has proved to be the use of chloride of lime and hydrochloric acid by means of which, along with an intermediate soap bath, a scroop very similar to that of silk is produced. Experience has shown that the best method of proceeding is, after thoroughly scouring the wool, to pass it through a weak bath of acid and afterwards work for half an hour in a bath of chloride of lime. The yarn is then allowed to drain, but it is not rinsed. It is then worked again for half an hour in a bath containing hydrochloric acid, and afterwards well rinsed. Treatment in a hot soap bath follows, and, again, without rinsing, work in a cold bath of acid, after which the material is ready for dyeing. The successive treatment with soap and then with acid brings about the disposition of a certain amount of fatty acid on the fiber, which has the effect of increasing the similarity of the handle of the wool to that of silk.

Certain qualities of wool which are lustrous to commence with, and have a hard handle, naturally give the best results. The action of the chloride of lime turns the color of the wool yellow, and in this condition wool, so treated, can only be used satisfactorily for blacks and dark colors, not for light shades. Should it be desired for the latter class of shades, it has been proved that it is possible to restore the original color of the wool by treating it with a strong reducing agent such as stannous chloride and hydrochloric acid, without affecting the silky handle at all. Nevertheless, it has to be observed that the chlorination should not be carried too far. For this reason, hypochlorite of soda can be employed with advantage in place of chloride of lime, better colors being then obtained.—The Dyer and Calico Printer.

OXIDIZED BLACK.

Editor Textile World Record:

The communication in your November issue regarding "Reddish Shades on Oxidized Black" and the Dyeing of Aniline Black, leads me to give you an outline of our method of dyeing aniline black and which has been very successful. We singe the goods first, then boil in the kier, giving them a slight bleach, then dry and run through the aniline mixture and squeeze them, drying on steam cylinders, until a dark green shade is obtained. We then put the goods through the aniline ager and carbonizing machine. It taken ten persons to look after this work and we get a speed of 30 yards per minute. We wash the goods and put them through a softening process and they are then ready for the drying cans. Hecla.

AN ELECTRIC CONDITIONING APPARATUS.

The high water absorbing power of textile fibers makes it important for buyers and sellers of textile materials to determine the amount of moisture in each purchase in order to avoid the possibility of heavy losses resulting from paying for water at the price of raw material or partly manufactured product.

The conditioning consists in drying a sample until the weight becomes constant, which indicates that all moisture has been driven off. A certain percentage is then added to this constant weight and the result accepted as the weight to be paid for. There are many establishments in Europe and a few in this country which make a business of the conditioning of materials for manufacturers and traders, but it has also been found desirable in many cases for individual manufacturers to install their own conditioning apparatus at the mills, so that, if desired, every lot of material received or shipped may be tested. The ordinary method of drying in conditioning apparatus is by hot air, which is either blown over or forced through the material. A departure from this method has been adopted by the Gesellschaft fuer Trockenverfahren, Berlin, Germany, in the construction of a conditioning apparatus in which the material is dried by the heat from an electric current. It is claimed that all kinds of textile materials such as raw stock, worsted top, yarn, raw silk, feathers, air, etc., are dried much more quickly by the new method than by the ordinary hot air system. The electric current and heat penetrates to all parts of the sample, which is treated uniformly throughout the lot. It is claimed that the electric apparatus also offers an advantage in a reduction of the cost of operation.

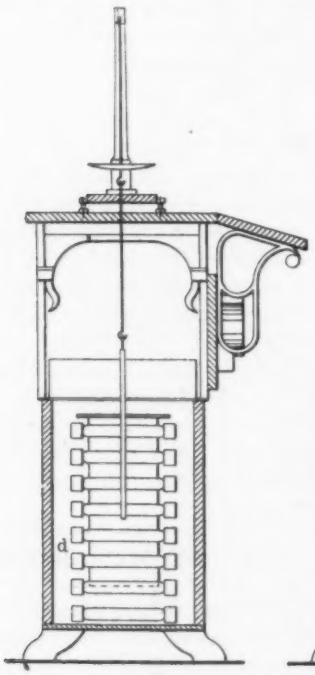


FIG. 1.

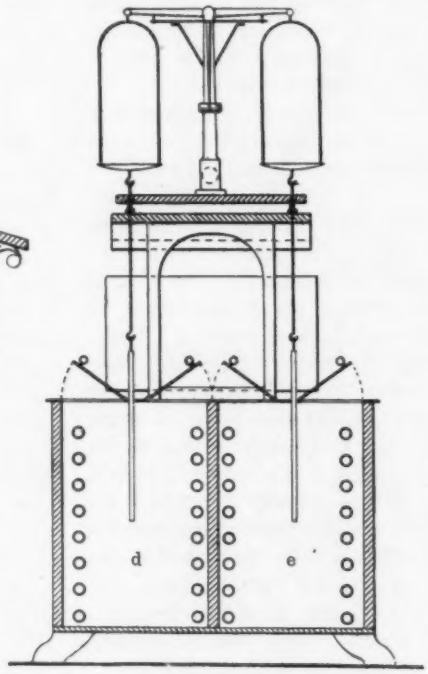
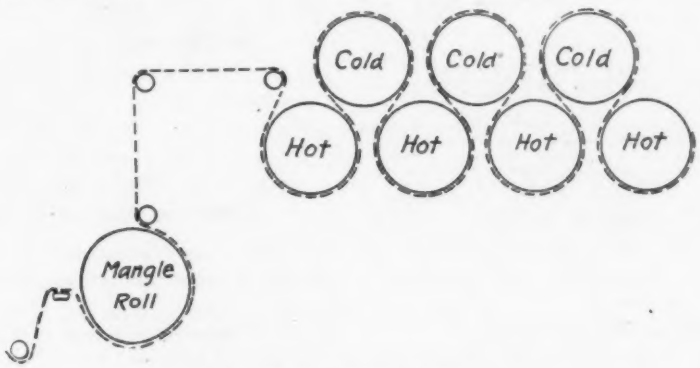


FIG. 2.

The temperature of the drying chambers in the electric machine is regulated very closely and the apparatus is said to be completely fire and explosion-proof and to give out no odor. Section and end views of the electric apparatus are shown at Figs. 1 and 2. There are two drying chambers in which are suitable carriers for the samples. The

weighing scales are placed above as shown. Each drying chamber serves alternately for a drying and weighing room. Lamps in the partition illuminate both chambers. The carriers are made to accommodate the necessary quantity of worsted top or other material and can be arranged in the form of reels on which the material may be wound. The bottom and top of the chambers are provided with draft holes which can be closed to prevent a current of air when the sample is weighed. There is a convenient table at which the operator makes the necessary records of the tests.



STARCHING COTTON GOODS.

For a temperature of 230° F. the power required is 1 1/2 KW. The duration of the test depends of course upon the size and character of the sample. Ordinarily a 10-ounce sample is brought to a constant weight in about three-quarters of an hour.—Uhlands Technische Rundschau.

Mixing Starch.

Editor Textile World Record:

Is there any way of mixing starch for heavily starched low count goods, like interlinings, to prevent the starch from plastering on the drying cans?

Buxton (1007).

If "Buxton" would first mix the starch in cold water until it becomes smooth and add boiling water to bring it to the desired consistency, mixing it well, he would find this difficulty greatly reduced. Do not use any more cold water than is necessary to bring the starch to a paste. The starch sticks to the can because it is not cooked long enough. It clings to the cloth in lumps and it is these lumps that stick to the can. Keep the cans hot and do not take too much time in running the cloth through. If these directions are followed good results will be obtained. Overseer.

This is a difficulty that nearly every cotton finisher has to contend with. During my 18 years of experience I have had this same trouble from time to time and the following remedies I have found most effective. If the goods are too wet coming from the starch mangle, the starch will stick to the can and will come off on the goods like tissue paper. "Buxton" should use a stronger mixture and put more weight on the mangle, leaving the goods drier. This remedy will apply to all pure starched goods with excellent results. On the other hand, there are some low goods that are back filled, that have to be filled to weight, and which have come off in a wet state in order to get the desired result. In a case of this kind nothing can be done to the mixing to prevent it from plastering on the cans. If the goods in question are back filled and there is a demand for them that would warrant the expense, I would advise "Buxton" to put in a big drying cylinder. With this machine the goods strike the cylinder on the face side immediately upon leaving the mangle, and when they have passed around the cylinder all danger of plastering is over. If the output does not warrant this expenditure, three or four cans filled with cold water put on the dryers might be tried, the starched side of the goods to pass on the

cold water cans and the face side on the hot cylinder. This reduces the danger of plastering to a minimum; with an occasional wash-down, good results will be obtained. The enclosed sketch illustrates this method. The cold water passes constantly through the cans, going in on one side and out on the other. As seen in the illustration, it is a direct run from mangle to cylinders. This is an advantage in heavily starched goods, as a better and more even filling is obtained. I have seen reels used underneath the cans to prevent this trouble. If the above suggestions are followed I am sure "Buxton's" difficulty will be overcome. Delco.

DYE RECIPES.

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 17.

Brown on Worsted Yarn.

Anthra Chrome Brown W G G on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Anthra Chrome Brown W G G.
(C. Bischoff & Co., 451 Washington St., N. Y.)
15 lbs. Glauber's Salt.
5 lbs. Acetic Acid.

Enter the yarn at 140° F., dye at a boil for 1/2 hour then add

1¼ lbs. Sulphuric Acid

and boil 1/2 hour longer. Then add

2½ lbs. Potassium Bichromate

and boil from 3/4 to 1 hour longer.

Anthra Chrome Brown W G G is exceedingly fast to sunlight even in light shades.

Recipe No. 18.

Orange on Cotton Yarn.

Prepare the dye bath with

3 lbs. Diamine Fast Orange E G.
(Cassella Color Co., 182 Front St., N. Y.)
2 lbs. Soda Ash.
20 lbs. Common Salt.

Enter at 180° F., and dye at a boil for one hour.

Diamine Fast Orange E G possesses excellent fastness to light, good fastness to washing. Stands the action of chlorine very well. It is well suited for the dveing of half wool and half silk material.

Recipe No. 19.

Brown on Worsted Yarn.

Anthra Chrome Brown W on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Anthra Chrome Brown W.
(C. Bischoff & Co., 451 Washington St., N. Y.)
15 lbs. Glauber's Salt.
5 lbs. Acetic Acid.

Enter yarn at 140° F., dye at a boil for 1/2 hour, then add

1½ lbs. Sulphuric Acid

and boil 1/2 hour longer. Then add

2¾ lbs. Potassium Bichromate

and boil 3/4 to 1 hour longer.

Anthra Chrome Brown W is exceedingly fast to sunlight even in light shades.

Recipe No. 20.

Yellow on Worsted Piece Goods.

Amazo Fast Yellow G on 100 lbs. worsted goods. Prepare the dye bath with

1¼ lbs. Amazo Fast Yellow G.
(American Dyewood C., 115 High St., Boston, Mass.)
3 lbs. Sulphuric Acid.
20 lbs. Glauber's Salt.

Enter at 120° F., bring slowly to a boil and boil for one hour.

Amazo Fast Yellow G is an eminently level dyeing yellow, distinguished by its bright, clear tone and its exceptional fastness to light. It will be found extremely valuable in the coloring of fast yellow and fashionable combined shades on woolen piece goods. It may also be employed with advantage on yarn and other forms of wool

Recipe No. 21.

Blue on Cotton Yarn.

Brome Indigo F B on 100 lbs. cotton yarn. Prepare the dye bath with

20 lbs. Brome Indigo F B, Powd.
(Farbenfabriken Co., 66 Lafayette St., N. Y.)
100 gals. Water at 150° F.
6 gals. Caustic Soda Solution, 53° Tw.
15 gals. Hydrosulphite Solution, 20° Tw.
(Prepared as indicated below).

Add the necessary amount of water so as to keep the bath of a concentration of 20 of liquor to one of material being dyed.

The dyeing is carried out at a temperature of

from 140° to 160° F. for 1/2 hour to 1 hour.

The dye liquor and the material should assume a clear golden yellow color while in the dye bath, otherwise the dyestuff needs more reduction by the addition of a small amount of caustic soda and hydrosulphite.

The hydrosulphite solution 20° Tw. is prepared by slowly adding

6 lbs. 8 ozs. Zinc Powder to
44 lbs. Bisulphite of Soda Solution, 78° Tw.

and

16 gals. of Cold Water.

While adding the zinc powder to the bisulphite, the temperature of the solution should not rise above 100° F. After adding the zinc powder stir well for 1/2 hour, allow to stand 1/2 hour. Filter the solution through a piece of calico. To this add

2 qts. Quick Lime.

Allow to settle. Again filter. Add

3 gills Caustic Soda Solution, 70° Tw.

Then add the water.

After dyeing pass through a hot bath slightly acidulated with sulphuric acid, then wash and soap.

Brome Indigo F B possesses excellent fastness to alkalies, washing, slightly superior to indigo in fastness to light and similar to indigo in its fastness to chlorine.

Recipe No. 22.

Tan on Cotton Yarn.

Naphtamine Tan T A R on 100 lbs. cotton yarn. Prepare the dye bath with

2 lbs. Naphtamine Tan T A R.
(Kalle & Co., 530 Canal St., N. Y.)
20 lbs. Common Salt.

Dye at a boil for one hour. Naphtamine Tan T A R gives a desirable shade of tan which will be found valuable in hosiery dyeing.

Recipe No. 23.

Red on Worsted Piece Goods.

Amazo Brilliant Red 2 B on 100 lbs. worsted piece goods. Prepare the dye bath with

2 lbs. Amazo Brilliant Red 2 B.
(American Dyewood Co., 115 High St., Boston, Mass.)
3 lbs. Sulphuric Acid.
30 lbs. Glauber's Salt.

Enter at 120° F., bring slowly to a boil and boil for one hour.

Amazo Brilliant Red 2 B is an eminently level dyeing bluish red of great richness of shade and of excellent fastness to light. It will be found especially useful in the coloring of reds and fashionable combined shades on woolen piece goods. It may also be employed with advantage on yarns and other forms of wool.

Recipe No. 24.

Black on Cotton Yarn.

Columbia Fast Black V Ex. on 100 lbs. cotton yarn. Prepare the dye bath with

4 lbs. Columbia Fast Black V Ex.
(Berlin Aniline Works, 213 Water St., N. Y.)
20 lbs. Glauber's Salt.
2 lbs. Soda Ash.

Enter at 180° F. and dye at a boil for one hour. Columbia Fast Black V Extra possesses high coloring power and the characteristic properties of the direct cotton blacks. Its fastness to light is very good for a direct cotton color.

Recipe No. 25.

Scarlet on Cotton Yarn.

Dianil Fast Scarlet G S on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Dianil Fast Scarlet G S.
(H. A. Metz & Co., 122 Hudson St., N. Y.)
15 lbs. Glauber's Salt.
1½ lbs. Soda Ash.

Dye at a boil for one hour.

Dianil Fast Scarlet G S is easily soluble and may be dyed in a short bath. It equalizes well and exhausts well, and its fastness answers the usual requirements of a direct cotton color.

Recipe No. 26.

Brown on Worsted Yarn.

Anthra Chrome Brown W on 100 lbs. worsted yarn. Prepare the dye bath with

¼ lb. Anthra Chrome Brown W.
(C. Bischoff & Co., 451 Washington St., N. Y.)
15 lbs. Glauber's Salt.
5 lbs. Acetic Acid.

Enter yarn at 140° F. and dye at a boil for 1/2 hour. Then add

1 lb. Sulphuric Acid

and boil 1/2 hour longer. Then add

1 lb. Potassium Bichromate

and boil from 3/4 to 1 hour longer.

Anthra Chrome Brown W is exceedingly fast to sunlight even in light shades.

Recipe No. 27.

Blue on Cotton and Wool Union Cloth.

Duatol Blue B on 100 lbs. cotton and wool union cloth. Prepare the dye bath with

8 lbs. Duatol Blue B.
(Cassella Color Co., 182 Front St., N. Y.)
25 lbs. Glauber's Salt.

Enter at a boil and work for 1/2 hour without any further heating. Raise again to the boil and continue boiling for 1/2 hour. The bath should be kept as short as practicable.

Rinse in water, adding a little acetic acid to the last wash water if necessary.

The Duatol Colors are a new group of dyestuffs, the principal advantage of which is that when being dyed in a bath containing Glauber's Salt, the quality of the wool is not in the least affected. The method of application is simpler and quicker than the two-bath method and upon the whole these groups of dyestuffs may be considered as an important mark of progress in the dyestuff industry.

Recipe No. 28.

Grey on Cotton Yarn.

Direct Fast Grey on 100 lbs. cotton yarn. Prepare the dye bath with

2 ozs. Direct Fast Grey.
(E. M. Thayer & Co., 411 Atlantic Ave., Boston, Mass.)
1 lb. Common Salt.

Dye at a boil for 1 hour.

Direct Fast Grey dyes easily level, and produces shades of excellent fastness.

Recipe No. 29.

Green on Cotton Yarn.

Columbia Green G on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Columbia Green G.
(Berlin Aniline Works, 213 Water St., N. Y.)
1 lb. Soda Ash.
20 lbs. Glauber's Salt.

Dye for one hour at a temperature of about 200° F.

Columbia Green G possesses fairly good fastness to washing, light, alkali, and acids, and will be found to be a good all round direct cotton green.

Recipe No. 30.

Yellow on Worsted Yarn.

Cloth Yellow G N on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Cloth Yellow G N.
(Geisenheimer & Co., 189 Front St., N. Y.)
10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter the material at 120° F., bring slowly to a boil and dye at a boil for one hour. Cool the dye bath to 150° F., then add

1½ lbs. Potassium Bichromate

and continue the boiling 1/2 hour longer.

Cloth Yellow G N possesses very good fastness to light, acids, alkali, and water. It exhausts and penetrates very well.

Recipe No. 31.

Green on Cotton Yarn.

Naphtamine Green H on 100 lbs. cotton yarn. Prepare the dye bath with

4 lbs. Naphtamine Green H.
(Kalle & Co., 530 Canal St., N. Y.)
25 lbs. Common Salt.

Dye at a boil for one hour. Naphtamine Green H gives a desirable shade of green which will be found valuable in hosiery dyeing.

Recipe No. 32.

Scarlet on Cotton Yarn.

Dianil Fast Scarlet 6 B S on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Dianil Fast Scarlet 6 B S.
(H. A. Metz & Co., 122 Hudson St., N. Y.)
15 lbs. Glauber's Salt.
1½ lbs. Soda Ash.

Dye at a boil for one hour.

Dianil Fast Scarlet 6 B S is easily soluble and may be dyed in a short bath. It equalizes well and exhausts well, and its fastness answers the usual requirements of a direct cotton color.

The exports of woolen manufactures from the United States to Mexico during the year ended June 30, 1908, were as follows: Carpets, $19,640; dress goods, $4,197; flannels and blankets, $860; wearing apparel, $363,910; all other, $16,505; total, $405,112.

The value of hosiery sold by Japan to India increased from $36,460 in 1902-3 to $1,279,743 in 1907-8. This is due to skill on the part of the Japanese, cheap but effective machinery, cheap labor and attention to the Indian market.

Mill News.

Those interested in receiving early and more complete investigated information of projected new mills, enlargements, improvements, fires facts and gossip of the trade are referred to the Textile Advance News, issued weekly by the publishers of the Textile World Record, at $15.00 per year.

COTTON.

New Mills.

Alabama, Slocomb. It is probable that the promoters of the proposed cotton mill company will succeed in forming a corporation with capital stock of $100,000. It is stated that application will soon be made for a charter. G. H. Malone and Clyde Kelley are interested.

*Georgia, Manchester. Fuller E. Callaway has been elected president of the new Manchester Cotton Mills; Roy A. Dallis, vice president; Willis E. Johnson, secretary and manager; and C. V. Truitt, treasurer. Other particulars have been given.

*Maine, Old Town. We are advised that the proposed cotton mill project is progressing finely. C. C. Garland, promoter, is raising $200,000 capital in this city, and reports that he has the cooperation to the entire community. The city has entered into a contract with him to guarantee 5 per cent. interest on $50,000 worth of stock for ten years, and has for the first 25 years fixed the value of the property for taxable purposes at $100,000. The company will be capitalized at $1,000,000. C. R. Makepiece & Co., Providence, R. I., will be engineers and architects of the plant. They are not ready as yet to make contracts or even consider contracts and will not be until they have more capital subscribed. They hope, however, to be in a position very soon to place both building and machinery contracts. The proposed equipment is 50,000 ring spindles and 1,200 looms for manufacturing medium grade goods.

*Massachusetts, Wilkinsonville. Eighty looms have been installed in the Army and Navy Cotton Duck Company's mill, and preparations for starting are nearly completed. Westinghouse electrical equipment is being installed and a water wheel from Rodney Hunt Co. Sam Hird, in charge of the plant, states that he is in hope of having the mills in operation within a few weeks. As reported previously a specialty will be made of military khaki, army and navy duck, and uniform cloths.

North Carolina, Concord. J. M. Odell has let contract for the erection of a spinning mill, 100 by 60 feet. This indicates that the Odells, whose plant was recently sold by the receiver to the Locke Cotton Mill Company, will resume cotton manufacturing.

*North Carolina, Davidson. The addition of new machinery to the Delburg Cotton Mill Co. refers to the installation of card room equipment. This is a new mill which has been operating the spinning department for some months, but roving has been purchased from the Linden Mfg. Co.

*North Carolina, Durham. It is announced that the Erwin Cotton Mills Co. will shortly begin the erection of a 50,000-spindle mill to be located either at this place or at Duke. Previous reports of this project have been given.

*North Carolina, Laurinburg. The proposed new cotton mill company which has been reported from time to time has been incorporated under the style of the Waverly Cotton Mill, with capital stock of $300,000. Owing to the interest shown in the new company it was decided to build a larger mill than originally planned, and the total equipment will be 18,000 spindles with preparatory machinery. Contracts have been awarded. The leader in the new enterprise is J. P. McRae, president of the Dickson Cotton Mill and the Scotland Cotton Mill, both of this place. Construction work will soon be started on the buildings.

*North Carolina, Lexington. Further information of the new Dacotah Cotton Mills (Inc.) is as follows: They will begin to build early in the spring, and expect to begin the production of goods about December 1, 1909. 30 cards, 8,500 spindles, and 250 looms will be installed for manufacturing white and colored cotton goods and 16s yarns. They have not decided on the kind of cloth to be made. Capital stock is $125,000, all paid in. C. A. Hunt, Jr., is president, superintendent and buyer, and W. H. Mendenhall is treasurer. Product will be sold through H. J. Farber, Drewry & Co. In addition to the above equipment a complete dye house for dyeing raw stock and yarn will be equipped and complete electric power plant installed.

*North Carolina, Statesville. The stockholders of the Turner Mills Co. have decided to increase the paid in capital from $130,000 to $150,000. The mill buildings are being erected at East Monbo.

*North Carolina, Taylorsville. Plans for the proposed new cotton mill are not sufficiently mature to warrant the making public of information in the view of officials. It is known, however, that the promoters are planning to form a company with capital stock of $100,000 to build a mill and equip it with 5,000 ring spindles.

*North Carolina, Weldon. Early in February the new Shaw Cotton Mills, Inc., will begin manufacturing. Construction work on buildings was begun just a year ago, and these have been completed and 5,129 ring spindles for manufacturing 20s to 30s single warps have been installed. W. T. Shaw is president.

*North Carolina, Zebulon. The Southern Spinning & Mfg. Co. has been incorporated with capital stock of $300,000 to build and equip a cotton mill at this place. T. J. Horton of the Zebulon Hosiery Mills, Z. M. Cavines and others are the incorporators. Early reports of this project stated that a 5,000-spindle mill would be equipped and the company capitalized at $100,000. It has evidently been decided to build a larger mill.

Enlargements and Improvements.

Alabama, Columbia. An additional story is being built to the Alabama Cotton Mills, and a new dam will be built to develop additional power.

*Alabama, Eufaula. Donald Comer is president and treasurer of the Cowikee Mills, previously reported incorporated with capital stock of $100,000 to take over the Eufaula Cotton Mills. C. F. Faulkner is superintendent. Extensive improvements will be made and it is understood that the looms formerly run by the Eufaula Co. will be taken out and 370 new looms set up in their place. 37-inch 4-yard sheetings will be the product. Mr. Comer attends to the buying.

*Connecticut, Moosup. A night force has been put to work in the Aldrich Mfg. Company's Union Mills. Upon the completion of the new weave shed, which has been under construction for some months, the number of looms will be increased from 1,100 to 1,500.

*Connecticut, Versailles. The new storehouse for the Totokett Mfg. Co. has been completed by C. Morgan Williams, contractor, and work has been started on the main building, to which another story will be added. 300 looms are to be added, replacing old ones to be taken out. Fine cottons are manufactured.

Georgia, Columbus. New machinery is being installed in the branch of the Bibb Mfg. Co. in North Highlands. It is now operating 30,000 spindles.

*Georgia, Monroe. The Monroe Cotton Mills have recently bought 62 dobby heads and now have a total of 102 dobbies in the plant.

*Georgia, Thomaston. The addition being erected to the plant of the Thomaston Cotton Mills is 250 ft. long, and in addition to the installation of 5,000 new spindles as previously reported, 150 looms for manufacturing duck and sheetings will be installed O. A. Robbins of Charlotte, N. C., is in charge of construction work and has awarded contracts for necessary machinery.

Massachusetts, Caryville. An addition to the dye house of the Taft Woolen Company is being constructed.

Massachusetts, Fitchburg. The Parkhill Mfg. Co. is making a second installation of Turbo-Humidifiers. The work is being done by the G. M. Parks Co.

Massachusetts, Fitchburg. About 200 new looms are being installed in the new weave shed of the Parkhill Mfg. Co. on Circle St. This makes 600 looms in that building.

*Massachusetts, Fitchburg. In February the addition to the Grant Yarn Co., now under construction, will be completed and machinery will have been installed and manufacturing have commenced by March 1. The product will be combed cotton yarns. A. G. Smith is agent and J. L. Duffy is superintendent.

Massachusetts, Lowell. The directors of the Boott Mills have authorized further improvements to the plant. The nature of the improvements is not stated.

Massachusetts, New Bedford. A new weaving mill, 150 by 165 feet, and one story high, will be built for the Pierce Manufacturing Corporation. B. F. Smith Co., J. W. Bishop Co. and other contractors will submit bids for construction work. The cost will be in the neighborhood of $50,000.

*Massachusetts, New Bedford. A new building will be erected for the Page Mfg. Co., and 500 looms and 12,000 spindles be installed. The new structure will be a three-story building, 518 by 105 it. Contract for construction work has been awarded to B. F. Smith & Co. and will be started as soon as favorable weather conditions will permit. There has been some talk of a new company being formed with John W. Knowles of the Page Mill at the head, but nothing has been given out regarding this project.

Massachusetts, Shirley. During the summer a new building will be erected for the Samson Cordage Works. Braided cords and cotton twines are manufactured. The company has capital stock of $300,000.

Massachusetts, Waltham. Improvements are being made to the plant of the Boston Mfg. Co. The pitched roof on what was formerly the machine shop has been removed to make way for a flat roof and the building will be used for a dye house. The machine department is now located in the basement of mill No. 1. The wooden building now used as a dye house and bleachery will undergo a complete change and a portion of the building will be removed.

*Massachusetts, Webster. New spinning mules are being set up in the spinning room of S. Slater & Sons Inc., replacing old English mules formerly in use. The construction of the foundation for the new weave shed will be completed in a few weeks, but work on the superstructure will not be started until summer. As reported previously, contract has been awarded to the Torrington Building Co., Torrington, Conn. When completed the new mill will be equipped with looms from the old weave shed and the old building will be used for storage purposes.

New Hampshire, Claremont. Four new speeders, one twister, and one reeling machine, from the Lowell Machine Shop are being added to the equipment of the Monadnock Mills.

*New Hampshire, Manchester. Work on the new mill of the Amoskeag Manufacturing Company is being pushed forward as rapidly as possible, and it is expected that the brick work will be well under way by March 1.

*New York, Falconer. Further particulars of the improvement at the Falconer Towel Company's plant are as follows: The new main building is 49 by 119 ft. and three stories high. A new bleaching building two stories high, 35 by 64 ft., will be erected with concrete floor on a level with the first floor of the main building. The engine room will be 16 by 20 ft. and the boiler and coal room 28 by 31 ft. These two buildings will be one story high and will be equipped with a 75 h. p. engine and an 80 h. p. boiler. Up to date bleaching machinery also will be installed. The present machinery, which is nearly new, will be moved into the new building. Additional looms and machin-

ery will be added some time the latter part of this season, or the beginning of next. The new buildings will be ready for operation the latter part of June.

New York, Jamestown. Additional machinery will be installed in the Chautauqua Towel Mills. Owing to the number of orders on hand it is desirable to complete this enlargement as rapidly as possible and it is planned to have the new machinery in operation by February 1. Turkish towels, cotton huck towels, bath mats, bath sheets and face cloths are manufactured. William C. Briggs is treasurer and general manager.

North Carolina, Cherryville. It is reported that the Howell Mfg. Co. will double its capacity within a few months. 5,000 ring spindles are operated on 20s to 30s cotton yarns.

*North Carolina, Concord. As soon as the new Locke Cotton Mills Co. is running in full, plans will be made to rebuild No. 4 Mill of the Odell Mfg. Company's plant. The Locke Cotton Mills Co. purchased the Odell company's property, as reported previously.

*North Carolina, Cornelius. Construction work has been started on a new building to be equipped as a finishing department for the Cornelius Cotton Mill. They manufacture colored cotton goods on 5,500 ring spindles and 200 looms.

*North Carolina, Cumberland. Machinery is in actual operation in the new building erected for J. Frederick Houston & Co., but while the building is large enough to hold three or four times the number of spindles they now have, new machinery will not be added at present, and nothing will be done toward increasing the equipment until business conditions warrant it in the estimation of the directors. They have installed electrical equipment and built the mill so as to have a final capacity of 20,000 spindles, as the mill is so constructed that a second story can be put over the present mill with a small additional cost, while with the present electrical equipment it will only be necessary to run light wires to drive the additional machinery. They operate 4,104 ring spindles on 8s to 16s skein warps, cones and tubes, from 2 to 6 ply. J. B. Driver is superintendent and the firm does the buying.

*North Carolina, Gastonia. In about 30 days the addition to the equipment of the Arlington Cotton Mills, consisting of about 3,000 new spindles, will be completed and machinery in operation. Further particulars of this enlargement have been given.

*North Carolina, Gastonia. About 3,000 spindles with preparatory machinery will be added to the Arlington Cotton Mills within a short time. It is understood that contract has been awarded. The new machinery will be installed in the building completed about a year ago, and standing idle since that time.

*North Carolina, Kings Mountain. The building for the proposed 10,000 new spindles to be added to the equipment of the Cora Cotton Mills is completed but machinery will not be installed until business for this concern is brisker. They report that they have made arrangements for machinery. 30s to 60s cotton yarns are made.

North Carolina, Lowell. It is reported that the Peerless Manufacturing Co. is considering the erection of an addition to hold 5,000 spindles. This number of spindles is at present operated on 40s to 60s cotton yarns.

North Carolina, Lowell. Fifty new looms have been added to the plant of the Spencer Mountain Mills. Heretofore the company has manufactured only yarns. W. T. Love is treasurer and buyer.

*North Carolina, Mt. Holly. Contracts for equipment for an additional building under construction for the Woodlawn Manufacturing Company have been awarded. Five thousand spindles will be installed, and will be driven by electrical equipment, from 100 to 125 h. p., which has not been ordered. This enlargement will about double the company's plant.

North Carolina, Monroe. A proposition is being considered by the directors of the Icemorlee Cotton Mills Co. for erecting another mill, near the present plant. Knitting yarns are manufactured on 5,000 ring spindles. Charles Iceman is general manager.

North Carolina, Newton. Within a short time five new spinning frames with a total of 1,120 spindles will be added to the equipment of the Catawba Cotton Mill. This improvement will be completed in two months. John R. Yount is manager. Recently new equipment including warpers, winders, reels, etc. was added.

North Carolina, Salisbury. Further enlargement of the Kesler Manufacturing Company is planned, in the form of a new structure, two stories high, 80 by 120 feet. About $100,000 will be expended on this enlargement. In October a number of improvements were made at this plant, and the power equipment changed to electric drive.

*North Carolina, Salisbury. Construction work has begun on the proposed 40 by 50 ft. addition to the Vance Cotton Mills. Beam and bale warpers will be added as reported previously and contract has been awarded. Dr. F. J. Murdock is president and E. B. Neave is secretary, treasurer and manager.

*North Carolina, Worth. Within sixty days the proposition to add 4,000 spindles to the Harden Manufacturing Company will be decided. O. D. Carpenter & Sons are proprietors. The company has a building ready to receive the machinery.

North Carolina, Worthville. It is reported that the Worth Mfg. Co. will add 4,000 spindles at an early date. 5,800 ring spindles and 250 looms are operated on sheetings, colored cotton goods and seamless bags. A branch of this plant is located at Central Village, N. C.

Pennsylvania, Philadelphia. A fire which recently occurred on the fourth floor of the mill of Robert Beatty & Co., at Coral and Adams Sts., caused considerable damage to the building and manufactured stock on hand. They are manufacturers of fine cotton yarns operating 16,814 spindles. The damage is now being repaired.

Rhode Island, Hope. The improvements at the Hope Company's plant are nearly completed and a new 500 h. p. engine installed. A feature of the new power plant will be a rope-drive. Shipments of new spinning frames and looms have arrived and the machinery is being set up. Early reports of these improvements were given in October, 1908.

South Carolina, Cowpens. The Mary Louise Mill and Cowpens Mfg. Co. will soon be equipped with electrical power machinery. The Electric Mtg. & Power Co. is building a sub-station at this place.

*South Carolina, Greenville. It has been decided by the company's directors to add 25,000 spindles and 700 looms to the equipment of the Woodside Cotton Mill. This will represent an expenditure of probably $500,000. Arrangements will be perfected at once for the enlargement.

*South Carolina, Greenville. The Brandon Mills have engaged Lockwood, Greene & Co. of Boston, to plan and supervise the construction of a four-story mill building, 300 by 125 ft., in which 25,000 spindles and 700 looms for the production of print cloths and converters' goods will be installed. Contracts for machinery are expected to be awarded late in January. This announcement follows the action of the Brandon Mills directors in voting an increase of capital stock from $450,000 to $900,000 as reported previously.

South Carolina, Inman. It is reported that the Inman Mills will build an addition providing sufficient space to double the present equipment. Fine sheetings are manufactured on 120,000 ring spindles and 50 broad looms.

*South Carolina, Lancaster. Leroy Springs, president of the Lancaster Cotton Mills and the Eureka and Springstein Mills of Chester, has awarded contract for electrical equipment for the three plants mentioned to the Westinghouse Electric & Mfg. Co. This improvement was reported when the change was first contemplated.

South Carolina, Laurens. The Watts Mills will erect an addition, and add equipment to cost in the neighborhood of $60,000.

*South Carolina, Laurens. The Watts Mills are making only a small addition to their plant and will put in a few preparatory machines. They are not enlarging the weave room and the production will not be increased. Reports are being circulated of an addition of 2,000 spindles, but this is incorrect.

*South Carolina, Rock Hill. The capital stock of the Aragon Cotton Mills will be increased from $200,000 to $400,000 and the equipment of the company will be doubled. In October, 1908, it was reported that 10,000 spindles and 280 looms would be added, but the company has delayed, awaiting improvement in business. Alexander Long is president, treasurer and buyer.

South Carolina, Woodruff. The Gray Mfg. Co. and the Woodruff Cotton Mills are to be equipped with electrical power machinery to take advantage of the extension of the Electric Manufacturing & Power Company's lines to this city.

*Tennessee, Trenton. As previously reported, a half interest in the Trenton Cotton Mills has been sold to W. P. Hunt and his brother J. W. Hunt. The plant has 6,000 ring and 2,900 twisting spindles which are operated on skein yarns, 20s to 30s. The company will be reorganized and equipment improved. D. L. Lewis will be president, J. A. Lewis treasurer, W. P. Hunt secretary and manager, and J. W. Hunt superintendent.

*Texas, Bonham. About 2,800 spindles and 80 looms will be added to the Bonham Cotton Mills between the first of the year and June 1. This will complete the plant as originally intended. The expenditure for this enlargement will be in the neighborhood of $30,000.

*Texas, Cuero. Early in the spring construction work will be started on a new mill for the Cuero Cotton Factory, formerly Buchel-Rungel-Graves Co., and completed and equipped for the production of goods to begin about August 1. Sheetings and drills will be the products and 5,000 spindles and 160 looms will be operated. J. A. Graves is president, Otto Buchel is treasurer, and R. T. Comer is superintendent and buyer. The plant will be operated by electricity. The capital stock of this company is $200,000.

Texas, Denison. New spindles will be added to the equipment of the Denison Cotton Mill Co., and a new cotton warehouse erected. They manufacture cotton duck, and yarns, on 12,000 spindles and 175 looms.

WOOLEN.

New Mills.

Kentucky, Louisville. The Bradford Worsted Spinning Co., recently organized with capital stock of $50,000, will begin manufacturing in the plant of the old Eclipse Woolen Mille within a few days. The equipment is 3,200 worsted spindles.

*Massachusetts, Boston. The Eastern Worsted Co., previously reported incorporated, will probably be in full operation about the middle of February, although samples will have been gotten out before that date. They will equip a building at 696 East 1st St., South Boston, with two scouring machines, a carbonizing plant, and eight Noble combs, for the manufacture of tops, and to do scouring and carbonizing for the trade. The capacity will be 30,000 pounds a day. J. R. Milson is manager.

*Massachusetts, Williamstown. A new company in which R. A. J. Hewat, of Strong, Hewat & Co., woolen manufacturers of North Adams, is interested, will be formed to equip the Boston Finishing Works' property for manufacturing woolen and worsted goods. It is stated that a grade of goods similar to those manufactured at present by Strong, Hewat & Co. will be made, although the new company will not be connected with Strong, Hewat & Co. In October, 1908, the property was sold to George A. McDonald, of North Adams, for $25,000, and at the time it was suggested that Mr. McDonald was acting for Mr. Hewat, although nothing official was given out.

*Michigan, Pickford. E. S. Taylor, proprietor of the new Pickford Woolen Mill, states that he

will begin manufacturing early in the spring with one set of cards and three looms. Details of this plant have been given.

*New Hampshire, Gonic. The proposed new carpet mill will be located in the Allen shoe factory building near the West Rochester depot. E. M. Boocock, the proprietor, is interested in a rug and carpet manufacturing business located in Philadelphia. He formerly resided in Rochester and is a brother of Mrs. L. B. Willey, of South Main St.

*Ohio, Cleveland. The Ohio Yarn Mills Company, reported incorporated with capital stock of $10,000, will begin the manufacture of woolen and merino yarns about February 1, giving employment to 15 hands. From 6 to 30 cut yarns will be manufactured. Two sets of cards will be installed and a complete dye house equipment for dyeing raw stock. T. C. Adams has been elected president and buyer, and Peter P. Hasek, treasurer. The plant will be located at 3116 West 32d St., Cleveland, Ohio.

Pennsylvania, Philadelphia. The Hasley Manufacturing Co., a new concern which will soon be incorporated, with D. Holden as president, Thomas W. Holden, treasurer, and John Hasley, formerly of the Reno Manufacturing Co., as manager and superintendent, are equipping the second floor of the building at 4060 Orchard St., Frankford, with 31 broad looms on which they will manufacture cotton and worsted dress goods, using 2/30 cotton and 2/36 and 1/20 worsted yarns. It is also the intention of this concern, after it is fully under way, to install a plant for finishing its own product, which will be sold direct. D. Holden will do the buying.

Pennsylvania, Sellersville. The Sellersville Manufacturing Co. has recently been started up in this town. They are manufacturing men's wear, commencing their operations with four looms and will increase the plant as the business becomes established.

*Rhode Island, Providence. The new worsted spinning company, reported as proposed in December has been incorporated under the name of the Bridgeton Worsted Co., and will probably locate a plant in Burrillville, R. I. Daniel H. Reese of Peacedale, Alexander Jowett, formerly manager of the Hodgdon Worsted Co. of this city, and William B. Greenough, a local attorney, are the incorporators.

*Tennessee, Lebanon. H. K. Edgerton, president, and Harry M. Freeman, manager of the Lebanon Woolen Mills, recently incorporated with capital stock of $60,000, would like to get in touch with anyone making the line of goods which they propose to manufacture, that is, wool blankets. They will proceed at once to erect and equip a two-set mill and will use steam, electricity, or a gas producer plant for power.

Enlargements and Improvements.

Connecticut, Baltic. Looms are being put in the new mill of the Shetucket Worsted Mill, N. H. Donohoe, proprietor. This building was completed in July, 1908, but machinery was not installed owing to the business depression. A few weeks ago the Shetucket Mills resumed full time.

*Connecticut, Buckland. No new machinery will be needed for the addition under construction for E. E. Hilliard & Co., Inc. Improvements will be completed about February 1.

Connecticut, Norwich. The equipment of the Reliance Worsted Co. will be increased and improved at an early date.

Connecticut, Stafford Springs. Eight looms have recently been added to the equipment of the Faulkner Woolen Mills, Frederick Faulkner, proprietor, making a total of 45 looms, which are running 70 hours a week. The company also has 10 to 15 looms running full time in the plant of another local mill. Ernest D. Boyce is superintendent, and Ralph Hill is designer.

Maine, Limerick. It was reported in March that the water power of the Limerick Mills was being further developed in connection with the change to electric power. A large force of men is employed and it is expected that the mill will be operated in full by electricity before the end of January.

Maine, Skowhegan. Three new spinning frames have been ordered by the Maine Spinning Company, and will increase the capacity of the plant about one-fifth. It will be about six weeks before they are installed ready for manufacturing.

Massachusetts, Lawrence. A two-story addition will be built to Section D of the Wood Worsted Mills. Work has already started. This extension is designed to increase the yarn spinning capacity so that the company will be able to produce all the yarn it uses in weaving instead of being obliged to buy a portion of it in the market as at present.

*Massachusetts, Lowell. The new building to be erected for the Musketaquid Mills will be equipped with 70 new looms, making a total of 140 looms. Spinning machinery will not be installed as the company will continue to buy all yarns used. Capital stock will be increased from $150,000 to $300,000 to finance this improvement. A new Morgan & Smith water wheel is being installed at present and in addition to this a new 300 h. p. boiler and 200 h. p. engine, electrical machinery, twisting machinery, and other equipment will be needed. E. J. Hylan is treasurer and buyer.

*Massachusetts, Lowell. Early in the spring a new building will be erected for the Lyon Carpet Co., and 20 new looms installed.

Massachusetts, North Adams. It is reported that ten new looms will be added to the Mayflower Worsted Mills within the next month.

Massachusetts, North Billerica. About twenty old looms are being taken out of the Talbot Mills and twenty new worsted looms are being set up to replace them. A line of worsted men's wear will be made.

*Massachusetts, North Chelmsford. George C. Moore has announced that a new mill will be built on the sight of the plant burned several days ago. Attention will be paid to plans and building preparations at an early date.

Massachusetts, North Chelmsford. In the next few months a new wool scouring plant will be built for the Moore Spinning Co. Miner &

O'Neil of this place have been awarded contract for construction work. The new building will be one story high, 250 ft. long and 40 ft. wide. Another improvement to be made shortly is the installation of two 1500 h. p. turbine engines. A new engine house will be built for this new power equipment.

Massachusetts, Pittsfield. New boilers are being installed in the Berkshire Worsted Mills, replacing the old boilers which are being taken out.

Massachusetts, Pittsfield. A new engine is being installed in the upper mill of J. L. & T. D. Peck Mfg. Co. Manufacturing will be resumed next week.

*Massachusetts, Plymouth. Work has been started on the superstructure of the new building for George Mabbett & Sons Co. As reported previously, the new space will be used for dressing and weaving.

*Massachusetts, West Millbury. The Millbury Mills of the Uxbridge Worsted Co. are planning an addition, as previously reported, but are not ready to give out particulars of the matter. This plant is commonly known as the Millbury Worsted Co., and is being operated night and day, giving employment to two shifts of help.

New Hampshire, Newport. A new drier has been installed in the finishing department of Richards, Dexter & Sons Co. Flannels are manufactured on 17 sets and 96 narrow looms.

*New Jersey, Freehold. The addition to the plant of A. & M. Karagheusian, recently noted, is rapidly nearing completion and the original plans to begin manufacturing by February 1 will probably be carried out. Twenty-five new rug looms will be the equipment.

*New York, Fulton. At a meeting of the directors of the American Woolen Co. it was voted to increase the capacity of the Fulton Worsted Mill. This is a worsted mill with equipment of 16 combs, 23,000 worsted spindles and 296 looms.

Pennsylvania, Norristown. The Abraham Hirsh Co., whose plant was recently burned out, have recently sold out their business to a Mr. Harrison of Philadelphia, who starts it up again as soon as the building is repaired and ready for operation. The plant contains 30 broad looms, which are operated on art squares.

Pennsylvania, Philadelphia. Estimates are being asked for a new dye house, 37 by 70 ft., a sulphur building, 20 by 35 ft., and a tank and foundations as an addition to the worsted spinning plant of S. B. & B. W. Fleisher, located in Manayunk.

*Pennsylvania, Philadelphia. It is reported that Wolstenholme & Clarke, now located at Leverington Ave. and High St., Manayunk, where they are manufacturing worsted and merino yarns with 19,500 spindles, 10 cards and 10 combs on the French system, have recently purchased a plot of ground in the vicinity of the 22d St. Station of the P. & R. Ry. (22d and Allegheny Ave.) on which they will have erected a new and modern building five stories high, of concrete, and into which they will remove as soon as it is completed.

Pennsylvania, Philadelphia. A contract has recently been given out by John Gay's Sons, manufacturers of ingrains, tapestry and velvet carpets with mills at Howard and Norris Sts., and Trenton Ave. and Ann St., for alterations and additions to their Ann St. building which will cost in the neighborhood of $4,000.

*Pennsylvania, Philadelphia. Julius Gebauer, recently reported by us as purchasing a plot of ground in the lower end of Frankford, on which he proposed erecting a building into which he would remove when completed, has had plans prepared for a four-story factory building and power house. The main building will be 60 by 120 feet, with a wing 40 by 40 feet. The power house is to be one story, 20 by 60 feet. The entire operation will cost about $50,000. Mr. Gebauer is now located at Unity and Leiper Sts., where he is engaged in the manufacture of men's wear worsteds.

Pennsylvania, Philadelphia. Carl Grubnau, who has been operating a mill at 2d and Erie Ave., in which he has been scouring wool, is now arranging for the installation of two cards and three combs for the purpose of making worsted tops. The machinery has been ordered from Taylor, Wordsworth & Co., of England and the Crompton & Knowles Loom Works, Worcester, Mass., and will be put in operation as soon as they have been set up. Frank Hey is in charge of the plant.

Rhode Island, Oakland. Eight new Crompton & Knowles broad looms have been installed in the weave shed of the Oakland Worsted Mills. A new shear also is being added to the finishing department. Business is reported as being very good. Clay worsteds and serges are manufactured on 92 looms.

*Rhode Island, Providence. Looms are being received at the Elston Worsted Company's plant, and although the floor in the new building is not completed, machinery is being set in place as fast as possible.

Rhode Island, Providence. A 1500 kilowatt steam turbine will be added to the power plant of the Atlantic Mills. This company has already one steam turbine installed.

Rhode Island, Woonsocket. At a meeting of the Board of Directors at the Scotia Worsted Mills, it was decided to build a new dye house, which will have three times the capacity of the present dyeing department.

West Virginia, Barnesville. A new napper has been ordered by the Barnesville Mfg. Co. This is the only improvement contemplated at this time, and reports to the effect that a new building will be erected are incorrect.

West Virginia, Keyser. It is proposed to increase the capital stock of the Patchett Worsted Co. from $100,000 to $200,000, and greatly increase the capacity of the plant. Worsted yarns up to 30s are manufactured on the Bradford system, on 5 combs, and 2,400 spindles. Joseph E. Patchett is treasurer and buyer.

West Virginia, Terra Alta. The Rigg Woolen Mill Co., also known as the Terra Alta Woolen Mills, has resumed manufacturing after a shut down of several months. Five new looms have been added, making a total equipment of one set

of cards and sixteen looms. Dress goods, flannels and blankets are manufactured. The company has capital stock of $50,000; L. M. Albright is president, W. H. Glover is treasurer, and J. N. McClanahan is manager and buyer. Further improvements will be made, and they are interested in a three horse power gas engine.

Mills Starting Up.

Connecticut, Danielson. At the opening of the new year it is believed that orders will be received to warrant the starting and permanent running of the Danielson Worsted Company's mill. Fancy worsteds are manufactured on 12 looms.

Maine, Wilton. The upper mill of the Wilton Woolen Co. has started up after a shut down lasting several weeks. The outlook for business is excellent.

*Massachusetts, Clinton. About thirty operatives are at work in the Litchfield Worsted Mills, and it is planned to give employment to thirty more hands. The affairs of this company will be settled shortly.

New Hampshire, Ashuelot. Manufacturing has been resumed in the Sheridan Woolen Mill, Hugh Sheridan, proprietor. Eight looms being operated on order work.

West Virginia, Guseman. Manufacturing has been resumed by the Englehardt Woolen Mill Co. after a long shut down. It is reported that they have orders enough ahead to run the plant for some months. Flannels are manufactured on two sets of cards and twelve broad looms.

Mills Shutting Down.

Pennsylvania, Philadelphia. W. H. Thorpe & Co., 1543 Ruan St., manufacturers of men's wear, worsted, on 16 looms, under the superintendency of Robert McCuen, have closed up the plant and disposed of their machinery.

KNIT.

New Mills.

*California, Los Angeles. The new knitting plant which we reported would be started by the Wittenberg Co. will be known as the Pioneer Hosiery Mills, and manufacturing will begin about March 1. Ladies' cotton and silk hosiery and cotton half hose will be manufactured. They are interested in dyeing and finishing machinery. R. J. Wittenberg is president and buyer, and J. J. Newell is secretary and superintendent. Mr. Wittenberg may be addressed at 419 South Los Angeles St.

*Georgia, Acworth. J. W. Williams and Orlando Awtrey are at the head of the proposed hosiery and rope mill to be located at this place. We are advised that the company will soon be incorporated and construction work started on the buildings. Present plans place the initial equipment at about 75 knitting machines and a fully equipped dyeing and finishing department. Communications may be addressed to Mr. J. W. Williams or Mr. Orlando Awtrey. Nothing in the way of equipment or supplies has been contracted for.

Illinois, Chicago. A new concern has just started manufacturing men's hosiery under the style of the Chicago Guarantee Hosiery. Six automatic machines with capacity of thirty dozens per day are operated, giving employment to seven hands. All yarns are bought and the product is sold to local retailers. The plant is located at 98 Goethe St. C. H. Hysell is proprietor and manager.

*Massachusetts, Dodge. Anson N. Hall has decided to locate his knitting plant at this place and it will be known as the Merino Ledge Hosiery Co. The location is one-quarter mile south of Richardson's Corner, and about one mile from Dodge Centre. He has installed one knitting machine and one ribber, but expects to add from time to time more machines. He will make a good grade of men's hosiery and woolen mittens. He buys cotton and merino yarns.

Michigan, Grand Rapids. The Clarke Knitting Co. has been organized with capital stock of $25,000 to manufacture knit underwear and combination suits for men, women and children. They will install 20 knitting machines in a building now idle, probably in the Grand Rapids Felt Boot Company's old building, and plan to begin manufacturing by March 1. The plant will be operated by electric power and 16 hands will be given employment at the start. A. Edward Clarke is president, James A. Storer is treasurer and W. H. Downs is vice president. Mr. Clarke attends to the buying. The product will be sold direct.

Minnesota, Little Falls. Val E. Kasparek, a local merchant, contemplates starting a small knitting plant on men's extra heavy stockings. He is interested in necessary equipment.

*New York, Elmira. Further particulars of the hosiery plant started by Charles Heim are as follows: He has begun operations at 508 Sullivan St. with equipment of two knitting machines, one looper, and one ribber, using electric power. Half hose is manufactured from 30s to 36s combed yarn, single and two-ply. At present the product is sold direct. The dyeing and finishing of the product is done in Philadelphia. He expects to interest outside capital and within a short time greatly increase his equipment. Mr. Heim was formerly employed as boss knitter by the Tempest Knitting Co., of Perry, N. Y.

*North Carolina, Asheboro. At a meeting of the stockholders of the Acme Hosiery Mills organization was perfected and the following officers elected: D. B. McCrary, president; C. C. Cranford, vice president, and O. R. Cox, secretary and treasurer. Mr. Cox will have supervision of all the work, and has purchased a site for the plant. The company will operate 100 knitting machines in a 60 by 100 ft. building, adding a 70 h. p. steam plant for power. The capital stock is $25,000, all paid in.

Pennsylvania, Lititz. The new Lititz Hosiery Mills recently started here by John A. Bohler has put in 20 of the latest improved Boss knitters.

Pennsylvania, Philadelphia. Arthur Grant has recently started up a small plant at 5815 McMahon St., Germantown, in which he is manufacturing a line of ladies' and misses' all wool gloves, with

two latch and two spring needle knitters, using 2/20 and 2/30 worsted yarns. Mr. Grant reports that his present quarters are only temporary and expects within a short time to remove to another location where he can increase the size of the plant and conduct the business on a larger scale. He is selling direct.

Pennsylvania, Philadelphia. An application for a charter has been made for the Model Hosiery Mills with Walter P. McClure, Elliott Bard, and Henry H. Farley as the incorporators. It cannot be stated at present when or where the plant will be started.

Pennsylvania, Reading. A new knitting mill is being started in this city by Stevenson Brothers. They will manufacture women's and men's seamless hosiery and half hose, patent heel and toe, of cotton, and expect to operate 26 knitters, 5 loopers and 3 ribbers.

*Virginia, Portsmouth. Building operations are practically finished on the new building of Joseph A. Parker and machinery is now being moved. This building will combine the hosiery manufacturing business, paper bax factory, and dye works of Mr. Parker. Other particulars have been given previously.

Enlargements and Improvements.

*Connecticut, Winsted. The addition being built to the Winsted Hosiery Company's plant is simply for storage purposes. There will be no change in the equipment.

*Georgia, Rome. J. F. DuPree has been awarded contract for the erection of the proposed new buildings for the Rome Hosiery Mills. Other particulars of this enlargement have been given.

Illinois, Rockford. Extensive additions are to be made to the Burson Knitting Company's plant, and several hundred new knitting machines will be installed. Early in 1908 the capital stock was increased from $500,000 to $800,000.

*Iowa, Atlantic. The Olsen Knitting Co. will remove from Elkhorn to this place about February 1. Increased space will be occupied and five additional knitting machines installed, making a full equipment of ten knitting machines and six sewing machines to be operated on men's, ladies' and children's sweaters and cardigans. The business men of this place have guaranteed free rent, light and power for one year. The Olsen Knitting Co. has capital stock of $10,000 and with the enlarged equipment will give employment to twenty-five hands. W. Ratenborg is president and Carl Lawutzen is superintendent.

*Massachusetts, Pittsfield. There is nothing in the report that a bleaching and finishing department would be added to the Musgrove Knitting Company's plant. They will, however, add a new napping machine, contract for which has not been made. This company has capital stock of $22,000 and operates 26 knitting machines and 60 sewing machines on misses' and children's knit underwear. J. H. Musgrove is treasurer and buyer and Perry E. Miller is superintendent. The product is sold direct and through William Shelp, 346 Broadway, N. Y.

SILK.

New Mills.

*Massachusetts, New Bedford. The Crescent Mfg. Co. will not erect a new building. They are simply leasing more space to accommodate the increase in equipment which will be added. They are manufacturers of staple and fancy broad silks and cotton mixtures on an equipment which is at present 54 looms. W. J. Oothout is agent and buyer.

*Pennsylvania, Macungie. The new silk manufacturing company has been incorporated with capital stock of $10,000, under the name of the Macungie Silk Co. The equipment will be 4 or 5 looms to be operated by electric power. Dr. B. B. Fritch, Charles A. Grauch, and others are interested.

Pennsylvania, Nesquehoning. The Mauch Chunk Silk Co., of Mauch Chunk, Pa., have decided to erect a silk mill at this place to cost in the neighborhood of $60,000. Work is to be started on the buildings early in the spring. The capital stock of the company will be increased from $50,000 to $100,000.

Pennsylvania, Upland. The Chessauqua Silk Co. has been granted a charter at Harrisburg, with capital stock of $200,000. William R. Thomas, Fritz W. Thomas, and William L. Alford are the incorporators. The new concern will equip and operate the mill known as No. 3 Crozier Mill, recently purchased, as reported at the time.

Enlargements and Improvements.

Canada, Toronto. F. Chardin, formerly with the Concordia Silk Mills of Philadelphia, is now superintendent of the De Sauzea Silk Mills, located at the northeast corner of Eastern and Carlaw Aves., where they are manufacturing high grade silk ribbons on 8 looms, which they dye and finish in the piece. Mr. Chardin reports that the concern is quite busy and are putting up an additional building in which they will install machinery for dyeing their silk yarns in the skein. The plant is run by electric power and the production sold direct.

Canada, Toronto. The Canadian Silk Co., Ltd., manufacturers of silk labels, whose plant was reported as having been destroyed by fire during the month of May last, is reported as having consolidated their business with the Canadian Webbing Co. and have removed their plant to a new building which they recently erected on Monroe St., in which they are now conducting their operations.

Massachusetts, Holyoke. A contract for a number of quillers has been awarded by the Goetz Silk Manufacturing Company to Allen Iron Works of North Adams.

New Jersey, Paterson. A three-story brick and concrete mill to cost about $30,000 will be erected at the corner of Harrison and Summer Sts. for F. J. Day & Co., silk ribbon manufacturers. The building will be 328 ft. long and 95 ft. wide. When the building is completed, which will be sometime during the coming summer, the firm intends to double the capacity of its present plant and will

occupy the second and third floors. The first floor will be rented. At present 34 looms are operated.

New Jersey, West New York. The E. H. Kluge Weaving Company will occupy the former shade factory on Hudson Ave. between 19th and 20th Sts. This company manufactures silk labels, fancy ribbons, and similar goods. They operate plants in New York City and in West New York.

New York, North Tonawanda. Plans have been completed for a dye house for the Niagara Silk Mills. They manufacture double tipped silk gloves. E. I. Farmer is secretary and treasurer.

Pennsylvania, Easton. A two-story addition, 126 by 50 feet, is being erected for the Easton Silk Company. 1,500 spindles and 200 looms are operated on plain and fancy broad silks.

*Pennsylvania, Scranton. One hundred and twenty new looms will be installed in the addition being erected to the Paul Clemens Silk Mfg. Company's plant, making a total of 324 looms operated on broad silks. Contract for the building calls for its completion by March 1, and machinery will be installed as soon after that date as possible. Paul Clemens is manager and buyer. The plant is operated by electric power.

MISCELLANEOUS.

*Connecticut, Bridgeport. Equipment of the new Bridgeport Webbing Co., recently reported incorporated with capital stock of $5,000, consists of eight looms for manufacturing elastic webbings. William Boyd Spencer has been elected president and attends to the buying. Nelson H. Downs is treasurer. Mr. Spencer is also president of the Bridgeport Elastic Fabric Co., Inc., in whose plant the new concern is located.

*Connecticut, Middletown. Construction work is being pushed on the new three-story mill, 50 by 100 ft., being erected for the Russel Mfg. Co. The contract calls for the completion of the building by March 1. 100 new looms for weaving elastic narrow fabrics will be installed.

*Georgia, Palmetto. A new concern has been incorporated with capital stock of $25,000 to manufacture collars and bands. It is stated that contract has been awarded for construction of buildings and necessary equipment. H. L. Johnston president of the Palmetto Cotton Mills, will be president of the new company. Other reports of this project have been given.

*Maine, Skowhegan. The building in which L. L. Morrison's Oriental Rug Works were located, and which was destroyed by fire a week ago, will be rebuilt at once. Mr. Morrison will endeavor to put in machinery in time for spring work. He is interested in rug machinery, electric motors, cutters, shears, etc.

*Massachusetts, Lowell. The addition to the Waterhead Mills is for a change of office location, additional storage room, and general convenience. All supplies necessary have been contracted for.

*Massachusetts, Rockland. The Rockland Webbing Co. will increase its capital stock from $20,000 to $50,000. It was previously reported that this company had absorbed the Rockland Elastic Fabric Co., and the latter corporation will be dissolved. A meeting will be held February 1 to elect officers. Charles Woodward attends to the buying and will shortly arrange for six new looms. At present a one-story addition, 28 by 60 ft., is being built on the east side of the present plant.

*Massachusetts, Shirley. The Sampson Cordage Works advise that their plans are not definite enough to warrant giving out any information regarding the proposed addition to the plant. The new mill will be built during the summer.

*Massachusetts, Westboro. An addition of six looms to the equipment of Joseph S. Mason's narrow fabric plant will bring the total number of looms operated up to 44 looms, instead of 45 looms, as previously reported. Narrow fabrics, tapes and similar goods are manufactured. Joseph S. Mason is proprietor and buyer.

New York, Brooklyn. A new loom for the manufacture of asbestos bands will be installed in the H. W. Johns-Manville Company's plant.

*North Carolina, Concord. R. A. Brown's Sons of this place have secured contract for rebuilding the burned plant of the Kerr Bleaching and Finishing Works. The building will be 4 stories high, 60 by 225 ft., and is to be completed by June 1, 1909. New bleaching and finishing machinery will be required.

Pennsylvania, Philadelphia. A charter has been asked by Edward Meyer, Julius Leithold and Oscar Keller, for the Meyer & Leithold Silk Dyeing Co. Particulars regarding this company we recently reported through the columns of this journal. They have taken over a one-story building on Collins St. above Allegheny Ave., which they are remodeling and getting ready to equip with machinery for the dyeing of natural and artificial silks and expect to start operations about March 1.

FACTS AND GOSSIP.

Alabama, Glencoe. A cotton mill may be established here by a company which has offered to put $100,000 into the enterprise, providing certain concessions are given, which include water power and other privileges. Several prominent people are interested in this proposition.

*Alabama, Oxford. It is stated that prospects for a reorganization of the Planters' Manufacturing Company are encouraging. A meeting of the creditors was recently held to consider the affairs of the company.

Alabama, Wellington. A cotton mill may be located in this vicinity and it is reported that options have been secured on 60 acres of land. The parties interested are reported to belong in Columbus, Ga.

*Canada, Ontario, Parkhill. N. Matheson has been elected president of the Parkhill Woolen Mills Co., recently incorporated with capital stock of $20,000 to take over the woolen manufacturing business of which Mr. Matheson was proprietor. D. N. MacLeod is president and J. R. Strouss is superintendent. They are operating one set of cards, ten knitting machines and two looms on yarns, blankets and knit goods.

*Connecticut, Danielson. Nothing further than the information given in our previous report can be learned of the parties reported to be considering the establishing of a thread manufacturing concern in this locality. The Board of Trade claims to be in communication with parties, but does not care to give out information.

Connecticut, Norwalk. Smith & Kaufmann, manufacturers of silk ribbons on 50 looms, are agitating an ordinance prohibiting the smoke nuisance and it is reported will double their capacity if satisfactory results are obtained; otherwise the company may leave the city, as it claims to be seriously embarrassed by the smoke which comes from factories and locomotives which penetrates the silk used in manufacturing.

Connecticut, Rockville. The capital stock of Belding Brothers & Co. will be increased from $1,000,000 to $5,000,000, for the purpose of purchasing and holding stock in other companies.

Connecticut, Vernon. It is rumored that the Ravine Mills Company's plant may be equipped with woolen machinery and started up by R. B. Parker of Hartford. Mr. Parker was president and treasurer of the Ravine Mills Co.

*Connecticut, Waterbury. The new mill to be erected for the American Mills Co. will be three stories high, 200 by 60 feet, and will be completed about September, 1909. In early reports it was stated that a frame mill occupied by this company would be torn down to make room for the new structure. This is incorrect. All departments of the mill will be increased. Archer J. Smith is president and treasurer.

Georgia, Cordele. J. A. McKenzie is reported to be interested with a number of capitalists in organizing a company for the purpose of establishing a cotton mill here.

*Georgia, Hawkinsville. It appears that J. C. Cooper, of Atlanta, previously reported to have purchased the Dublin Cotton Mills, Dublin, Ga., is the leading figure in the organization of the Hawkinsville Cotton Mills. The new company will be operated under the style of the Southern Cotton Mills, while the Dublin Cotton Mills will be known in future as the Georgia Cotton Mills. W. N. Parsons, who was president and treasurer of the Hawkinsville Cotton Mills, will be associated with the new company.

*Kentucky, Louisville. Officers have been elected by the reorganized Hope Worsted Yarn Co. as follows: M. J. Duffy, president; Judge Charles Shields, vice president; W. H. Edinger, treasurer, and Alpha Garth, general manager. The capital stock is $125,000.

Maine, Camden. The Mt. Battie Mfg. Company's property, which has been idle for several years, has been sold to the Camden Savings Bank for $11,750.

Maine, Lewiston. On February 3 a meeting of the Hill Manufacturing Company will be held to vote on reducing the capital from $1,000,000 to $500,000 by cancelling one-half the outstanding stock, and subsequently increasing the capital to $750,000 by the issuing of 2,500 shares of additional stock for cash.

Maryland, Cumberland. A Board of Trade has been started at Meyersdale and efforts will be made to induce a silk manufacturing company to locate there. S. C. Hartley is chairman and W. B. Cook is secretary.

Maryland, Dickeyville. It is reported that the Ashland Mfg. Company's plant has been leased to Otto Goetze for a period of five years.

*Maryland, Ilchester. No sale resulted from the auction of the properties of the Thistle Mills Co. The highest bid was made by George Carragan, of New York, and was for $70,000, which the receivers refused. The price wanted by the receivers is $100,000 or more.

*Massachusetts, Adams. It is correct that the Berkshire Cotton Mfg. Co. has purchased land suitable for a new mill, but rumors to the effect that a new mill will be built at present, based upon the purchase of this land, are incorrect.

Massachusetts, Ashburnham. Irving S. Houghton, treasurer Houghton Web Co., Fitchburg, and William S. Fairbanks, also of Fitchburg, have purchased the Ashburnham Mills and their water privilege from Mrs. H. E. Nevins of Methuen. The mill has an equipment of 2,000 ring spindles and will be put in operation at once under the style of the Fairbanks Yarn Co.

*Massachusetts, Blackinton. It is generally believed that Meyer & Baxter, 79 Fifth Avenue, New York, selling agents for woolen and worsted goods, will operate the Blackinton Manufacturing Co.'s plant, but they will not confirm or deny this report at present. Some reports state that new looms will be added.

Massachusetts, Clinton. The Belle Vue Mills have leased the plant of the Pickford Worsted Company, and will begin the manufacture of cloth immediately in that plant.

*Massachusetts, Clinton. W. J. Brodmerkle, proprietor of the Litchfield Worsted Mills, intends to organize a stock company and in this way get new capital to run the mill. Our previous report to the effect that there would be a new head to the financial end of the business is correct. Edward F. Hall, president of the Board of Trade, is aiding Mr. Brodmerkle.

Massachusetts, Concord Junction. An increase in the capital stock of the Strathmore Worsted Mills will be made by issuing 750 common shares of par value $100. The present capital stock is $150,000. The new issue will be offered to stockholders at the rate of one new share for every two held. It is understood that the plant will be increased. Men's wear worsteds are manufactured on 72 looms.

*Massachusetts, Dedham. Early in January it was reported that a Rhode Island concern was interested in starting up the Merchant's Mill. At the time we suggested that the report referred to the Hygienic Fabric Co., of Greenville, Rhode Island, whose plant was burned early in December. Since that time T. C. Asplund, one of the proprietors of the Hygienic Fabric Co., is reported to have purchased the Merchant's Mill and is endeavoring to interest capital in the enterprise.

Personals.

Winthrop L. Marvin of Boston, Mass., has been appointed secretary of the National Association of Woolen Manufacturers. He was born at Newcastle, N. H., May 15, 1863, and received his education in the Portsmouth High School, Roxbury Latin and Tufts College. He received his degree from Tufts in 1884 and upon graduation, entered into newspaper work, later becoming associate editor and chief editorial writer for the Boston Journal, a position he has held for the past sixteen years.

James Ransenhousen, assistant overseer of finishing at the Pontoosuc Woolen Mfg. Company, Pittsfield, Mass., has severed his connection with that company and it is reported has accepted a position as overseer of finishing in a large mill at Providence, R. I. He was presented with a traveling case by the help employed in the finishing room.

William A. Tucker, superintendent of the River Spinning Company, Woonsocket, R. I., has concluded his duties with that company and accepted a similar position with Edward T. Steel & Company of Bristol, Pa.

Harvey L. Gray, shipping clerk at the Champlain Silk Mills, Whitehall, N. Y., has severed his connection with that company.

R. E. Walsh, overseer of dyeing at the New York Mills, New York Mills, Oneida Co., N. Y., has severed his connection with that company and returned to his home in Pawtucket, R. I.

Frank Duffy has accepted the position as overseer of spinning at the Faulkner Mfg. Company, Stafford Springs, Conn. He comes from Wincoski, Vt.

L. T. Dahne has recently accepted the position as superintendent of the Camden Woolen Mill, Camden, Me. He comes from Waterville.

Captain Milton Hume, a cotton mill owner and one of the wealthiest residents of Huntsville, Ala., died at his home as a result of a stroke of apoplexy, which caused him to fall from a second story window at his home. His death was due to the fall.

James Lowe, a textile printer and employed at the Aspinook Bleachery, of Jewett City, Conn., was found dead on the steps leading from the railroad track to Mechanic St. in that town after leaving the train from Norwich, Conn. Mr. Lowe had been in his usual health and before coming to Jewett City had been employed at Lowell, North Adams, and Dover, N. H. He was one of the most popular workmen in the bleachery and was highly respected. He leaves no relatives.

James O'Connell has accepted the position as overseer of dyeing at the Lees Mfg. Company, Westport, Conn. He was formerly employed at the Summit Thread Company, East Hampton, Conn.

Henry T. Williams, son of Thomas Williams, formerly a woolen manufacturer of Worcester, Mass., and treasurer of the Republican City Committee, died at his home after a year of illness at the age of 44 years. He was born in Worcester. After graduating from the public schools he became engaged in the woolen manufacturing business with his father.

James E. Okell, overseer of finishing at the Lincoln Mill, Pascoag, R. I., and president of the National Association of Wool & Worsted Overseers, who recently underwent an operation for appendicitis, is recovering from the operation nicely. It is hoped he will soon be able to resume his duties at the mill.

Samuel F. Winsper, superintendent of the Bennett Mill of the N. E. Cotton Yarn Company, New Bedford, Mass., has resigned to accept the superintendency of the City Mfg. Company, same city.

Thos. Gilmore, superintendent of the City Mfg. Company, New Bedford, Mass., has severed his connection with that company.

Albert Hughes has accepted a position as loom fixer at the Burlington Mill, Winooski, Vt. He comes from Norwich, Conn.

Frederick Jones, overseer of dressing, twisting and winding at the Kent Mfg. Company, Centreville, R. I., for the past six years, has severed his connection with that company.

Henry Horton, overseer of the knitting department at the Lindenwald Mill, Poughkeepsie, N. Y., has resigned.

Jeremiah M. Mahoney, overseer of dressing, spooling and warping at the Grinnell Mills, died at his home on 74 Cedar Grove St., New Bedford, Mass. Mr. Mahoney had been overseer at this mill for a number of years.

R. H. Armfield has accepted the position as overseer of carding at the Holt-Williamson Mfg. Company, Lafayetteville, N. C.

S. H. Howard has accepted the position as superintendent of the Holt-Williamson Mill at Lafayetteville, N. C.

John Smith has been promoted to the position of overseer of spinning at the Avon Mills, Gastonia, N. C.

Robert Moring has accepted the position as superintendent of the Swift Cotton Mills, Elberton, Ga., succeeding R. J. Brown.

Wm. Riggs, who has been employed at the Geo. Brooke & Son Company, Oriental Mills, 55th St. and Wyalusing Ave., W. Philadelphia, Pa., was arrested for attempting to shoot Geo. Broke, one of the members of the firm. The shooting was in the office of the mill and the bullet passed between the finger and thumb on the right hand of Mr. Broke. It is claimed that Mr. Riggs had a quarrel with Marshall Broke, overseer of weaving, and had returned to demand wages which were due him, when the shooting took place.

Martin O'Toole has severed his connection with the Namquit Worsted Mill, Bristol, R. I., as overseer of finishing and accepted a similar position at the Montrose Woolen Company, Woonsocket, R. I.

Thomas Ahern has accepted a position as overseer of carding at the Rochester Woolen Company, Rochester, N. H. He comes from Winooski, Vt.

Chas. Baker, overseer of finishing at the Crown Mills, Marcellus, N. Y., has resigned and gone into the real estate business at Los Angeles, Cal.

P. A. Smith has accepted a position as overseer of finishing at the Crown Mills, Marcellus, N. Y. He comes from North Adams, Mass.

Clair Taylor, superintendent of the Akers & Taylor Mfg. Company, Charlton City, Mass., has resigned. He is succeeded by H. C. Grimwade.

Henry Moore has been appointed overseer of finishing at the Beebe Webber Company, Holyoke, Mass. He was formerly employed at the Geo. H. Gilbert Mfg. Company, Gilbertville, Mass.

Thomas Cavanaugh, foreman of the carding department at the United States Cotton Company's Mill, Central Falls, R. I., has been appointed superintendent. The vacancy in the carding department will be filled by G. H. Earnshaw, who was formerly employed at the Grant Mills, Providence, R. I.

Wm. Sykes, overseer of dyeing at the Neponset Woolen Mills, Canton Junction, Mass., for the past six years, has severed his connection with that company.

James Edwin Okell, president of the National Association of Woolen and Worsted Overseers, and who underwent an operation for appendicitis recently, died at his home in Pascoag, R. I. He leaves a wife and three children. He had been overseer at the Lincoln Mill for a number of years.

Albert E. Riley has accepted a position as overseer of dyeing at the Somerset Worsted Mills, East Madison, Me.

Thos. Jarvis has resigned his position in charge of the bleaching department at the New Haven Web Company, Hamden, Conn.

Wm. Marshall has resigned his position as second hand in the spinning department of the Franklin Mill, Franklin Falls, N. H.

Alec Linton has accepted the position as overseer of dyeing at the Kent Mfg. Company, Centreville, R. I. He comes from Easton, Mass.

Nathaniel Martin has accepted the position as overseer of carding for Fairbanks & Dorr, Granite State Mills, Guild, N. H. He comes from Rochester.

James Clavin has accepted the position as overseer of carding at the Priscilla Woolen Company, Spencer, Mass. He was formerly employed at Webster, Mass.

C. C. Gilligan has accepted the position as chief clerk at the Faulkner Woolen Mill, Stafford Springs, Conn. He comes from Danielson.

J. F. Bresett, overseer of dyeing at the Sawyer Mills, Dover, N. H., has resigned. His successor is John Keefe of the Riverside Mill, Stafford Springs, Conn.

Patrick Dougherty, overseer of carding at the Granite State Mills, Fairbanks & Dorr, Guild, N. H., has severed his connection with that company.

Webster M. Pike, overseer of dyeing at the Kent Mfg. Company, Centreville, R. I., has resigned.

W. O. Paisley, second hand in the dye house at the Kent Mfg. Company, Centreville, R. I., has severed his connection with that company.

Jacques Huber of the firm of Schwarzenbach, Huber & Company, after twenty years of service, is to sever his connection with this firm. The above company controls more broad silk looms than any other concern in the world. Mr. Huber was born in Switzerland.

Edwin K. Baldwin has been promoted to the position as superintendent of the Bay State Mills, American Woolen Company, Lowell, Mass., to succeed A. W. Slocumb. Mr. Baldwin has held the position as pay master for this company a number of years.

John P. Sampson, engineer at the Empire Worsted Mills, Johnsville, N. Y., was terribly injured by falling from the top of the boiler and landing on a mechanical stroker, twelve feet below. He was taken to the hospital and is on the dangerous list. After arriving at the hospital it was ascertained that his spine was injured in such a manner as to paralyze both legs and that he also sustained internal injuries.

Frank Ryan, overseer of spooling and winding at the Saranac Mills, American Woolen Company, Blackstone, Mass., has severed his connection with that company. He was presented with a handsome gold watch by the help in his department, the presentation being made by Miss Mary E. Tuite.

John Gannon has accepted a position as overseer of spooling and winding at the Saranac Mills, American Woolen Company, Blackstone, Mass. He comes from Woonsocket, R. I.

John Plouffe, overseer of the finishing department at the Chace Mill, American Woolen Company, Webster, Mass., was presented with a silver smoking set by the help in his department as a Christmas gift. The presentation was made by Miss Isadore Sheridan. Mr. Plouffe has been overseer of finishing for the past nineteen years.

J. T. Littlefield has accepted a position as engineer and master mechanic at the Atlas Worsted Company, North Salem, N. H.

D. Servais has been appointed superintendent of the woolen yarn department at the River Spinning Company, Woonsocket, R. I. Mr. Servais was one of the founders of the Woonsocket Spinning Company.

John Mills has accepted the position as overseer of weaving at the Williamsville Mfg. Company, Killingly, Conn. He was formerly employed at Newmarket, N. H.

Jas. Doraldson, overseer of dyeing at the Champlain Silk Mills, Whitehall, N. Y., has severed his connection with that company and returned to his home in Pawtucket, R. I.

Fred C. Pohlmann, overseer of dyeing at the James & E. H. Wilson Mill, Pittsfield, Mass., has severed his connection with that company.

Chas. Squires was elected a director of the Standard Cordage Company, New York City, at their annual meeting, held January 5th.

John Collier, superintendent of the Vassalboro Mills, North Vassalboro, Me., has resigned.

Ernest Nelson has accepted a position as designer and overseer of weaving at the Preston Fabric Tire Company, Buffalo, N. Y. He comes from Lowell, Mass.

H. S. Ford has accepted a position as second hand in the carding room at the Yantic Woolen Company, Yantic, Conn. He comes from Stafford Springs, Conn.

L. H. Corey has accepted a position as overseer of spinning at the Bailey Knitting Company, Fort Plain, N. Y. He comes from Chapinville, Mass.

A. W. Scott, the retiring superintendent of the Edward T. Steel & Company's mill at Bristol, Pa., was pleasantly surprised on the evening of December 31 at his home in Trenton, N. J., by the help employed in the mill, where he has been employed the past two years, by presenting him with a handsome clock and candelabra as a token of the esteem in which he was held. Mr. Achels, designer at the mill, made the presentation speech. Refreshments were served, and a pleasant evening was spent

Chas. H. Gardner and Daniel H. Taft are now employed as overseer and second hand in the carding department of the E. Jenckes Spinning Company, Pawtucket, R. I.

Geo. V. P. Crothers, formerly overseer at the Bennett Mfg. Company, New Bedford, Mass., has been employed by the E. Jenckes Spinning Company, of Pawtucket, R. I., as overseer of the finishing department.

E. B. Emerson has accepted a position as master mechanic at the Arlington Mills, Lawrence, Mass., succeeding Chas. W. Russell. He comes from Schenectady, N. Y.

Fay Keefe, second hand in the dyeing department at the Riverside Mill, Stafford, Conn., has been appointed overseer to succeed his father, John Keefe, who has taken a position at Dover, N. H.

John J. Congdon, overseer of the No. 5 Pocasset Mfg. Company, Fall River, Mass., has been transferred to the No. 1 Mill to succeed John M. Lancaster, who has resigned.

Julius Schmidt, designer at the Slayden Kirksey Woolen Mills, Waco, Tex., has severed his connection with that company.

Fred Tillotson, overseer of weaving and designer at the Brown & Whittier Mills, Lawrence, Mass., has resigned and was pleasantly surprised by the help employed in the weaving department with a handsome gold head umbrella, a box of cigars and a cigar holder.

John H. Austin, who had been connected with the Rock Mill, of Rockville, Conn., as assistant designer some years ago, died at the home of his brother, Frank Austin, at Lynn, Mass., recently.

Murray E. Schnyer has accepted a position as overseer of dyeing at the H. T. Murdock & Company, Proctorsville, Vt. He comes from Claremont, N. H.

John Lancaster, overseer of weaving at the Pocasset Mill, Fall River, Mass., for the past eighteen years, has resigned.

Henry Horton has resigned his position at the Lindenwald Mill, Poughkeepsie, N. Y., and it is reported he will engage in the manufacture of knit goods at Brooklyn, N. Y.

T. E. McCarthy has accepted a position as overseer of finishing at the Namquit Mill, Bristol, R. I. He comes from Rockville, Conn., but was previously employed at Mystic, Conn.

Jacob Kepner, general manager of the Forest City Woolen Mills, at Cleveland, Zanesville and Dresden, O., has severed his connection with the different companies.

T. H. Plouffe, formerly overseer of finishing at the Southwark Mills, 8th and Tasker Sts., Philadelphia, Pa., has resigned and accepted a similar position at the Lincoln Mill, Pascoag, R. I., succeeding James E. Okell.

T. J. Carney, overseer of carding at the Wiley Mfg. Company, Catskill, N. Y., has resigned to accept a similar position at the Athens Knitting Company, Athens, N. Y.

Wm. Waddle, assistant foreman in the carding department and James Mahoney, assistant foreman in the combing department at the Star Worsted Company, Fitchburg, Mass., have resigned and accepted positions at Louisville, Ky.

Jos. L. Harson has accepted a position as overseer of dyeing at the Akela Mill, Pascoag, R. I.

Harold R. Shirley has accepted a position as selling agent for the French Worsted Company, Woonsocket, R. I., and will make his headquarters at Philadelphia.

Andrew Smith has been appointed overseer of weaving at the Bigelow Carpet Company, Clinton, Mass He has been employed as loom fixer and second hand for this company the past 16 years.

B. L. Brown has accepted a position as overseer of knitting at the Forest City Woolen Mills Company's branch mill at Cleveland, O. He comes from Chester, Vt.

Jas. S. Jones has accepted a position as second hand in the finishing department at the Peace Dale Mfg. Company, Peace Dale, R. I. He comes from North Adams, Mass.

Jas. Anderson has been promoted to the position as superintendent of carding on the night shift at the Brighton Mills, Passaic, N. J.

Wm. H. Robinson has accepted a position as night superintendent of the Standard Spinning Company, Oswego, N. Y.

F. Jones has accepted a position as overseer of dressing at the Knoxville Woolen Mills, Knoxville, Tenn. He was formerly employed at the Kent Mfg. Company, Centreville, R. I.

John Shea has accepted a position as overseer of dressing at the Kent Mfg. Company, Centreville, R. I. He comes from the Lippett Woolen Company, Woonsocket, R. I.

H. L. Henries, overseer of finishing at the Montrose Woolen Company, Woonsocket, R. I., has resigned.

Samuel Burrans has accepted a position as overseer of dyeing at the Neponset Woolen Mills, Canton Junction, Mass.

Irwin S. Lodge has accepted the position as superintendent of the River Spinning Company, Woonsocket, R. I., succeeding Wm. A. Tucker. Mr. Lodge comes from Thos. Wilson's mill at Philadelphia.

Gordon Dobson of Pittsfield, Me., Hon. W. T. Haines of Waterville, and Ellis Jones, superintendent of the Newport Woolen Company, have been appointed a committee to attend the meeting of woolen manufacturers to be held at an early date, when the question of tariff will be discussed and a representative appointed to represent their case before the Ways and Means Committee, Congress.

Robert Knight of the firm of B. B. & R. Knight, manufacturers of cotton goods, and controlling a number of cotton mills in Rhode Island, celebrated his eighty-third birthday recently.

Geo. Schofield, formerly agent of the American Woolen Company, Moosup Mills, Moosup, Conn., has been appointed manager of the Airdalo Mills, Pittsfield, Mass.

Robert Armstrong has accepted a position as overseer of dyeing at the Jewell Brook Woolen Company, Ludlow, Vt.

N. H. Martin has resigned his position as overseer of carding at the Rochester Woolen Company, Rochester, N. H., to accept a similar position at the Granite State Mills, Guild, N. H.

Otho Sawyer has accepted a position as overseer of finishing at the Rochester Woolen Company, Rochester, N. H. He was formerly employed at the Saugus Mfg. Company, Saugus, Mass.

Albert E. Jones, overseer of dyeing at the Jewell Brook Woolen Company, Ludlow, Vt., has severed his connection with that company.

James Riley has accepted a position as overseer of finishing on the night shift at the Uxbridge Worsted Company, Uxbridge, Mass.

Chas. Elder has accepted a position as overseer of carding at J. Broadbent & Company's mill, Unionville, Conn. He comes from Worcester, Mass.

J. F. Bresett has accepted a position as overseer of dyeing at the Woolen Mfg. Company, Beaver Dam, Wis. He was formerly employed at the Sawyer Mills, Dover, N. H.

F. S. Brown has accepted a position as overseer of carding at the Shetucket Company, Norwich, Conn. He comes from Nashua, N. H.

Geo. W. Gerry has accepted a position as superintendtnt of Chas. M. Davis & Company, Northfield, Vt. He was formerly overseer of spinning at the Beaver Brook Mills, Collinsville, Mass.

Fred L. Kimball, overseer of carding at the North Vassalboro Woolen Company, North Vassalboro, Me., has severed his connection with that company.

Chas. McKenzie, overseer of the spooling and winding department of the Chicopee Mfg. Company, Chicopee, Mass., has severed his connection with that firm. He was presented with a watch charm and a diamond pin by the help employed in his department.

Roswell McDougall has taken charge of the combing department at the Fulton Mills, American Woolen Company, Fulton, N. Y.

James W. Murphy, superintendent of the Ashaway Woolen Company, Ashaway, R. I., has severed his connection with that company.

John McMilan has accepted a position as overseer of dyeing at the Hampton Company, Easthampton, Mass. He was formerly employed at the Naushon Company, Valley Falls, R. I.

F. H. Maloney has accepted a position as overseer of finishing at the J. O. Ballard Company, Malone, N. Y. He comes from Worcester, Mass.

John H. Woodcock has accepted a position as overseer of the cloth room at the M. T. Stevens Mill, Haverhill, Mass.

Hugh F. Little, formerly manager and superintendent of the Crescent Mfg. Company, Spartanburg, S. C., for the past 4 1/2 years, has severed his connection with that company.

Chas. I. Keegan has accepted a position as overseer of dyeing at the Rosemont Dyeing Company, Woonsocket, R. I. He comes from Dover, N. H.

Angus C. Burns, overseer of ring spinning at the Lancaster Mills, Clinton, Mass., for the past two years, has severed his connection with that company on account of ill health. His successor is William Hamilton, who has filled the position as second hand in that department for several years.

Chas. Burgess, overseer of weaving at the Williamsville Mfg. Company, Williamsville, Killingly, Conn., has severed his connection with that company and accepted a similar position at Warren, R. I.

John Andrews has accepted a position as overseer of weaving at the Riverside Mill, Stafford, Conn. He was formerly employed at Monson, Mass.

Fred A. Sanderson, city clerk of Willimantic, Conn., has been appointed to take charge of the books and accounts of the Windham Silk Company, Willimantic, Conn., beginning February 1.

R. H. Lewis has been made general manager of the Oxford Cotton Mill, to succeed J. Lock Erwin, who goes from these mills to Concord to the head of the Odell Mills.

Thomas Thompson, overseer of carding at the Linn Woolen Company, Hartland, Me., for a number of years, has severed his connection with that company and accepted a similar position at Dexter, Me.

Henry M. Templeton, overseer of finishing at the Beaver Brook Mills, Collinsville, Mass., has accepted a position with the Marsden Worsted Mills, Skowhegan, Me.

Geo. E. Bidwell, overseer of finishing at the Marsden Worsted Mills, Skowhegan, Me., has resigned.

Arthur McCauley has taken charge of dressing at the Lippett Woolen Company, Woonsocket, R. I., succeeding John Shea.

Henry L. Stewart has severed his connection with the Belle Vue Mills, Clinton, Mass., as overseer of finishing.

Henry Gill, without doubt the oldest factory overseer in the Blackstone valley and in charge of the weaving department at the mills of the John J. Kenyon Mfg. Company, Pawtucket, R. I., reached his eighty-second birthday recently. In honor of this occasion the employes of his department presented him with a handsome rocking chair.

Geo. A. Rodger has re-entered the employ of the Belle Vue Mills, Clinton, Mass., as overseer of finishing.

Lewis White, overseer of dyeing at the Champlain Silk Mills, Whitehall, N. Y., has severed his connection with that company.

Wm. Sykes has accepted the position as overseer of dyeing at the Merrimack Woolen Company, Lowell, Mass. He comes from the Neponset Woolen Company, Canton Junction, Mass.

Frank Reisdorph has accepted a position as traveling salesman for L. M. Crane & Company, manufacturers, importers and dealers in oils, Boston, Mass.

Joshua Cuttle has accepted a position as overseer of dyeing for Jos. Wild & Company, Brooklyn, N. Y. He was formerly employed at Emlenton, Pa.

Edward Nelson has accepted a position as second hand in the weaving department at the Slater Mills, Webster, Mass. He comes from Lowell, Mass.

Wm. O. Paisley has accepted a position as second hand in the dye house of the Scotia Mill, Woonsocket, R. I. He was formerly employed at the Kent Mfg. Company, Centreville, R. I.

W. H. Collins, overseer of finishing at the Sutton Mills, North Andover, Mass., for the past two years, has severed his connection with that company.

Nathaniel B. Borden, Jr., head bookkeeper at the Barnard Mfg. Company, Fall River, Mass., has been elected treasurer pro tem. This election will probably hold until the annual meeting of the stockholders next October. The directors also took action on the death of the late treasurer.

A. T. Bliss, superintendent and general manager of the Northampton Silk Company, Northampton, Mass., has resigned. He has been in poor health for several weeks. His successor is John Corbet of Phillipsburg, N. J.

C. August Pearson, overseer of carding at the Shetucket Company, Norwich, Conn., has severed his connection with that company.

A. Beckwith has been appointed superintendent of the Brown Mercerizing Company, Amherst, Mass.

Arthur E. Robbins of New Bedford, Mass., was elected clerk and treasurer succeeding James E. Osborne at a meeting held by the directors of the Corr Mfg. Company, Taunton, Mass. Mr. Osborne had been acting clerk and treasurer since the death of Wm. S. Porter.

Robert F. Coble, for several years superintendent of the Southern Cotton Mills at Bessemer City, N. C., is to accept a position as superintendent of the Lock Mill, Concord, N. C.

Jonathan Crocker, one of the oldest residents of Uxbridge, Mass., died at his home on Capron St. at the age of 83 years. Mr. Crocker had assisted in the building of several water privileges for the different woolen mills in this town and also assisted in the building of a number of the woolen mills.

Herbert Winsor has accepted a position as overseer of finishing at the Wm. Tinkham Company, Harrisville, R. I.

C. D. Risley has accepted a position as overseer of finishing at the Central Worsted Company, Central Village, Conn.

Wm. Hamilton has been appointed overseer of spinning at the Lancaster Mill, Clinton, Mass., succeeding A. C. Burns.

Wm. Douglas, second hand in the weaving department of the York Mfg. Company, Saco, Me., has severed his connection with that company.

John Lucy, overseer of carding at the Squamlake Woolen Mills, Ashland, N. H., has accepted a position with H. H. Wood & Company, Lakeport, N. H.

Alec Linton has resigned his position as overseer of dyeing at the Kent Mfg. Company, Centreville, R. I.

B. L. Harney has accepted the position as overseer of weaving at the Mayflower Worsted Mills, North Adams, Mass. He comes from Pittsfield, Mass.

Wm. Sykes has severed his connection as overseer of dyeing at the Merrimack Woolen Company, Dracut, Mass.

F. W. McEvoy has been appointed second hand in the dye house under his father at the Wuskanut Mill, Farnumsville, Mass., succeeding Walter E. Devine, who has accepted a position at the R. I. Worsted Company, Stafford Springs, Conn.

Wm. Andrews, designer at the Knoxville Woolen Mills, Knoxville, Tenn., has returned to his home at Chester, Pa.

John W. Stevenson, agent of the Fulton Mill, American Woolen Company, Fulton, N. Y., entertained the overseers and assistant overseers at a dinner recently held in the new home of "The Elks" in Fulton.

Luke Kavanaugh, an inventor and successful mill owner of Waterford, N. Y., died at his home in that city at the age of 84 years. He is survived by his wife and three sons.

Edwin A. Cady was elected treasurer of the Warren Mfg. Company, Warren, R. I., at a meeting of the stockholders. He is to succeed Frank S. Drowne, who died recently. Mr. Cady is manager of the Warren branch of the Industrial Trust Company.

Benjamin E. Smith, formerly overseer of twisting at the American Thread Company's mill at Willimantic, Conn., died at his home at the age of 73 years.

A. Lloyd Briggs has been appointed superintendent of the Ashaway Woolen Company, Ashaway, R. I., succeeding Jas. W. Murphy.

John Greenhalgh, for the past four years overseer of the twisting, winding and spooling department at the Geo. H. Gilbert Mfg. Company, Gilbertville, Mass., has severed his connection with that company. He is succeeded by Geo. Parker, who was overseer at the No. 1 Mill. Mr. Parker's position is filled by Frank Gilders of the Adams Woolen Company, Adams, Mass.

Joseph Bonnie, overseer of the carding department at the Interlake Mills, Arkwright, R. I., and Miss Eliza Richards were married in that town recently. The newly married couple will reside at Arkwright.

Francis Carroll has accepted the position as overseer of the spinning department at H. H. Wood & Company's hosiery mill, Lakeport, N. H.

Noel La Chance has been promoted to the position as overseer of dressing at the Adams Woolen Company, Adams, Mass., succeeding Frank Gilders.

B. L. Brown has accepted the position as superintendent of the Forest City Woolen Mills Company's branch mill at Cleveland, O. He comes from Chester, Vt.

John H. Mahoney has accepted the position as superintendent of the Ashuelot Warp Company, Ashuelot, N. H. Mr. Mahoney was formerly connected with the firm of Davis & Mahoney, yarn manufacturers of Pittsfield and Adams, Mass.

Thomas Fletcher has accepted a position as overseer of carding at the Warren Woolen Company, Stafford Springs, Conn. He comes from Andover, Mass.

Peter Hill, overseer of weaving at the Marsden Worsted Mills, Skowhegan, Me., has severed his connection with that company.

T. W. Ranschausen has accepted the position as overseer of finishing at the Sutton Mills, North Andover, Mass. He comes from the Bay State Mills, Lowell, Mass., and succeeds W. H. Collins.

Albert E. Riley has severed his connection as overseer of dyeing at the Somerset Worsted Company, East Madison, Me.

Edward A. Throbridge was elected to membership of the Home Saving Bank Corporation, Boston, Mass., at their annual meeting held recently. He is a member of the Warren Soap Mfg. Company, manufacturers of textile soaps and chemicals, also a member of the Republican State Committee.

Jos. J. Guerin, boss dyer at the Guerin Spinning Company, Woonsocket, R. I., and Miss Rose Giguere were married in that city recently.

J. H. Hunt has been appointed superintendent of the mill at Trenton, Tenn. He was formerly overseer of weaving at Shelby, N. C.

V. M. Johnson has been appointed superintendent of the Aragon Mills, Aragon, Ga. He was formerly employed at the Merrimack Mfg. Company, Huntsville, Ala.

T. G. Asbell has resigned his position as overseer of carding at the Natchez Cotton Mills, Natchez, Miss.

A. B. Peterson has accepted the position as superintendent of the Pacolet Mfg. Company, New Holland, Ga. He was formerly employed at the Courtenay Mfg. Company, Newry, S. C.

J. B. Bailwy has accepted the position as overseer of weaving at the Fairfield Cotton Mills, Winnsboro, S. C. He was formerly employed at the Liberty Cotton Mills, Liberty, S. C.

H. B. Bates has resigned his position as overseer of weaving at the Victor Mills to become superintendent of the Ottray Mills, Union, S. C.

D. M. Myers has accepted the position as superintendent of the John Mfg. Company, King's Mountain N. C. He comes from the Odell Mills, Concord, N. C.

L. A. Carter is now superintendent and manager of the Hillsboro Cotton Mills, Hillsboro, Tex.

Seth Taylor has accepted a position as overseer of finishing at the Riverside Mill, Danville, Va. He comes from Columbus, Ga.

W. B. Morgan has accepted a position as overseer of weaving at the Manetta Mills, Lando, S. C. He was formerly employed at Concord, N. C.

T. S. Haskell, formerly superintendent of the Courtenay Mfg. Company, Newry, S. C., has accepted a position as overseer of carding and spinning at the Eastman Cotton Mills, Eastman, Ga.

R. J. Campbell has accepted a position as overseer of spinning in the No. 2 Mill of the Anderson Cotton Mill, Anderson, S. C.

Chas. F. Faulkner has accepted the position as superintendent of the Eufaula Cotton Mills, Eufaula, Ala. He comes from the Spaulding Mills, Griffin, Ga.

J. E. Yon, for the past two years employed at the Eureka Mill, Chester, S. C., has accepted a position as overseer of spinning at the Majestic Mill, Belmont, N. C.

Chas. A. Ziegler has accepted the position as superintendent of the Visor Knitting Company, Niagara Falls, N. Y. This concern manufactures sweaters. Mr. Ziegler comes from Cleveland, O.

Elmer L. Tilton, of the firm of G. H. Tilton & Son, hosiery manufacturers, Tilton, N. H., has been named by Governor-Elect Quinby as aide-de-camp with rank of Colonel on the Governor's staff.

John J. O'Neil has accepted a position as overseer of knitting at the Holmes Knitting Company, Malden, Mass. He comes from Springfield, Mass.

J. H. Vincent, overseer of the knitting department at the Utica Knitting Company, Utica, N. Y., has accepted a position with the Waiontha Knitting Company, Richfield Springs, N. Y.

John H. Wright has accepted a position as ribber and looper fixer at the Wisdom Hosiery Mills, Paducah, Ky. He comes from Madisonville, Tenn.

Clark Williams has accepted the position as knitting machine fixer at the Wisdom Hosiery Mills, Paducah, Ky. He comes from the Richmond Hosiery Mills, Rossville, Ga.

Peter M. Joyal has accepted a position as overseer of knitting at the Kalamazoo Knitting Company, Milwaukee, Wis. He comes from Lawrence, Mass.

John Sharp, overseer of spinning and drawing at the British Hosiery Mills, Olneyville, R. I., has been appointed to a similar position at the Elton Hosiery Mill, Olneyville.

J. H Vincent, overseer of knitting at the Utica Knitting Company, Utica, N. Y., has resigned to accept a responsible position with the Waiontha Knitting Company, Richfield Springs, N. Y.

Thomas H. Igo has severed his connection with the Bailey Knitting Mills, Fort Plain, N. Y., as overseer of spinning and will accept a similar position at the South Bend Woolen Company, South Bend, Ind.

Martin Howard has accepted a position as superintendent of the Clinton Knitting Company, Clinton, Ont., Canada, succeeding G. W. Sheeley.

Robert G. Brown has resigned his position as overseer of carding at the C. B. Alling Mill, Derby, Conn., and returned to his home at Winsted, Conn.

John Sharpe, formerly overseer of spinning at the British Hosiery Company, Thornton, R. I., has accepted a similar position with the Elston Worsted Mills, Providence, R. I.

David Holmes, master mechanic at the New England Knitting Company, Winsted, Conn., has resigned His successor is Wm. J. Cooke.

Michael O'Brien has accepted the position as overseer of spinning at the Mechanicville Knitting Company, Mechanicville, N. Y.

Peter Dockray, overseer of the spinning department at the Lawton Spinning Company, Woonsocket, R. I., has been promoted to the position of superintendent. He will be under Wm. Halliwell, agent of this mill.

W. H. S. Moffett, overseer of carding at the Warren Woolen Company, Stafford Springs, Conn., has resigned.

J. Webster Helliwell, superintendent of the Airdale Mills Company, Pittsfield, Mass., has resigned and is succeeded by Geo. Schofield.

S. M. D. Clapper, superintendent of the Aken Knitting Company, Philmont, N. Y., has resigned.

James Pollard, millwright at the Apponaug Print Works, Apponaug, R. I., has severed his connection with that company on account of poor health.

Edward S. Adams has been elected treasurer of the Bradford-Durfee Textile School, Fall River, Mass.

Paul Whalen, overseer of carding at the Tilton Woolen Mills, Tilton, N. H., has resigned.

John Cullen Whiting, at one time superintendent of the Simmons Braid Company, Providence, and who later leased the braiding machines of the Hammond, Knowlton Silk Company of Putnam, Conn., and started the manufacture of fancy braids, but on account of the hard times gave up business, died at the home of his wife's father, Thomas Cuttle, of Brookline, Conn. He was born June 24, 1875.

Stephen Whitham, head bookkeeper at the Lawton Spinning Company's mill, Woonsocket, R. I., has been transferred to the Boston office.

DEATHS.

Thomas E. Eyanson, a prominent woolen manufacturer and senior member of the Seattle Woolen Company, with offices at First Ave., Seattle, Wash., also a member of the Sons of the Revolution, died at the Providence Hospital in that city. His death was due to cancer. He was 72 years of age, and in 1892 came to Seattle from Columbia City, Ind., where he had been engaged in the woolen manufacturing business and built a mill at Kirkland, Wash. A few years ago he gave up woolen manufacturing and devoted his time to a store on First Ave., Seattle, which was known as the Seattle Woolen Mills Company.

Geo. P. Hanks died at his home in Mansfield, Conn., at the age of 75 years. He was one of the leading men of the town and his name had been connected with one of the leading industries of the country in the manufacture of silk. He was born Dec 11, 1833, and when a young man entered into the silk business under his father, and later began his career as a silk manufacturer.

Frank Wasley, state inspector of factories and a resident of Lowell, Mass., died at his home in that city at the age of 65 years. He had been a resident of Lowell for forty years and had been employed at the Bigelow Carpet Company as boss printer for a number of years. Twelve years ago he was appointed state inspector of factories.

H. M. Thompson, a retired manufacturer of Lowell, Mass., and at one time proprietor of the Thompson Felting Mills of that city, shot himself twice at his home on 14 Park Street and died in-

stantly. Mr. Thompson was 61 years of age and had been subject to fits of melancholy. It is thought he had been worrying over financial reverses. Besides a wife he leaves two sons.

Moses H. Cone, senior member of the Cone Export & Commission Company of Greensboro, N. C., and New York, and identified with the manufacture and sale of cotton goods for many years, also a prominent factor in the South, died at Baltimore, Md., where he had gone for a short stay. The firm which he was the founder of had grown to be one of the leading cotton goods commission houses in America.

Francis Hazen Cope was run over and killed by a fire department hose wagon in Boston, Mass., late Thursday, January 7. He was well known in the cotton yarn market in Philadelphia. Mr. Cope was crossing the street when a fire engine passed by. He stopped and stood watching the engine, not noticing the heavy hose wagon coming close behind. Mr. Cope was struck by this wagon and knocked down. He had an office in the Mariner & Merchants Bldg., 308 Chestnut St., Philadelphia, and was 40 years of age. Not long ago he severed his connection with the firm of the Cannon Mills, having represented them for a number of years. He belonged to a society of friends and lived with his father and mother on the family estate, Aubury, in East Washington Lane, Germantown, Pa. He was a graduate of Haverford College.

Geo. C. Howe, one of the most prominent citizens of Thompsonville, Conn., died January 7 at his home in that city. He had been connected with the Hartford Carpet Company and the Upson, Martin Carpet Company for a number of years as shipping clerk. He was born February 14, 1840.

Wm. Ross, a prominent citizen of Chaplin, Conn., and owner of the A. C. Turner Silk Mill, died at his home, January 6, at the age of 76 years.

Samuel Tinkler, Sr., a retired woolen manufacturer of Norristown, Pa., died recently at the age of 80 years.

Ellis Whitney Reynolds, one of the best known manufacturers of Monson, Mass., having been connected some years ago with the leading mills of that town, died at him home in Medway, Mass., at the age of 84 years. He was educated in the public schools and academy, afterwards entering the employ of his father and served several years learning the woolen business.

J. Hunts Schmidt, second vice president and secretary of the United States Finishing Company, died on Monday, January 11th, at St. Augustine, Fla., at the age of 68 years. Mr. Schmidt had been in ill health for some time and had gone to Florida in hopes that his health would be benefited. He had undergone an operation on the Saturday preceding his death and was unable to rally. For many years Mr. Schmidt was in the worsted manufacturing business, at one time manager of the Norwalk Bleaching, Dyeing & Printing Company.

John Feather, a well known textile designer, died at him home in Cambridge, Mass., at the age of 60 years. He was formerly employed at the Cabot Mfg. Company, Brunswick, Me.

Geo. H. Osborne died at his home in Lowell, Mass., of acute kidney trouble. He was formerly a resident of Woonsocket and had been overseer of carding in several mills in the New England States. His last position was with the Davis & Brown Woolen Mill of Killingly, Conn. Some years ago he was employed at the Pranker Mfg. Company of Saugus, Mass. The burial was at Woonsocket.

John Louis Klonne died at his home in Cincinnati, O. He was one of the foremost leading citizens of that city and a member of the firm of Klonne & Company, importers and dealers of woolen goods.

Frank S. Drownie, treasurer of the Warren Mfg. Company, of Warren, R. I., died at his home on Main St. in that town, having been seized with an attack of the grip. He was 66 years of age and one of the best known mill men in Rhode Island. Was at one time connected with the Slater Cotton Mills, Pawtucket, and the River Spinning Company, Woonsocket, R. I.

Chas. E. Randall, employed at the Phillipsdale branch of the Glenlyon Dye Works, Phillipsdale, R. I., died at the Rhode Island Hospital from the result of blood poison caused by wounds received by highwaymen who held up the carriage which he was driving after returning from the bank with money to pay the employes of the Glenlyon Dye Works.

Nathaniel Safford York, one of the most prominent citizens of Rockport, Mass., passed away at his home on Main St. in that town after an illness of several months' duration. Some years ago he was employed at the Annisquam Cotton Mills, where his father held the position as agent. He is survived by a widow and one son.

Wm. S. Cochrane, a mill overseer who had been employed in one of the large mills in Lowell, and whose home was at 54 South Whipple St. of that city, was found dead at his home. He had been suffocated by illuminating gas and had been in ailing health.

John Shuttleworth, one of the leading manufacturers of Amsterdam, N. Y., died at the home of his daughter, Mrs. Clayton Mattison of South Shaftsbury, Vt., of heart failure. He was born in England sixty-two years ago, and with his brother began the manufacture of carpets under the firm name of Shuttleworth Bros. He is survived by a wife and three daughters.

Frank Mitchell, formerly a resident of Needham, Mass., and who had been engaged in the manufacture of elastic knit goods at Cleveland, O., for a number of years, died in that city at the age of 56 years. His body was brought to Needham for interment in the Needham Cemetery.

Eben H. Nutting died at his home in Manchester, N. H. Some years ago he was employed as overseer of weaving at the Dundee Mill, Hookset, N. H., and later appointed agent of the Hookset Mfg. Company. He retired permanently from active manufacturing some years ago and took up his residence at Manchester.

New Publications.

[Any work noticed under this head can be obtained through the office of this journal.]

Drawing Copies for Schools of Textile Design. Manufacturers and Pattern Designers; by Thomas Weigner, Principal of the Technical School for Weaving, Warnsdorf, Bohemia; price with samples, $18.00; without samples, $13.00.

This work consists of 30 sheets 19 1/2 by 25 inches showing jacquard designs finely executed in colors. There are also 10 additional sheets each bearing a large sized sample of various fabrics illustrating the designs. The work is of a very elaborate character and would prove of great value for textile schools. The collection is enclosed in a very substantial portfolio. A copy can be seen at our Boston office, where orders for the work can be placed.

Studies from Nature; by Thomas Weigner, Principal of the Technical School for Weaving, Warnsdorf, Bohemia; price $10.00.

This is a collection of 22 sheets, 14 1/2 by 19 1/2 inches showing colored studies taken from nature, and designs developed from them for textile and other industrial purposes. A copy of the work can be seen at our Boston office, where orders for it can be placed.

Hogg's Improved Slide Rule; by James Hogg; price $3.50.

The frequency and complexity of calculation in textile work afford many opportunities for the use of the slide rule. Mr. Hogg has prepared a very clear explanation of the use of the slide rule in textile work. Being a practical mill man as well as a mathematician, he is especially fitted for this work. The book is accompanied by a slide rule of very substantial construction.

The Tariff, a Review of Tariff Legislation from 1812 to 1896; by William McKinley; 260 pages, 9 by 6; G. P. Putnam's Sons, New York; price $1.75.

This volume presents an essay on the tariff written by the late William McKinley in the spring of 1896. It is dated May 25, 1896, at Canton, a few weeks before his nomination, and a few months before his election as President of the United States. The reader finds here a valuable historical sketch of the tariff and the arguments in support of protection, all written in the clear, straightforward style for which Mr. McKinley was noted. It is a valuable and timely addition to the literature on the tariff.

The Tariff History of the United States; by F. W. Taussig, LL. B., Ph. D., Professor of Economics, Harvard University; 418 pages, 7 1/2 by 5; G. P. Putnam's Sons, New York; price $1.25.

This is a collection of articles which have been previously published separately and are now brought together to form a very convenient and valuable history of the tariff in the United States. The separate articles have been carefully revised and new matter added to make the work complete. The present volume is the fourth edition and contains a chapter on the tariff act of 1897, the Dingley bill. The story is told in a clear and easy style and the author presents his arguments by an array of facts, which bring his conclusions forcibly to the reader's mind. The book is instructive, fair and very readable. A copy should be in the possession of everyone who attempts to make a serious study of the leading issue of 1909.

The Structure of the Wool Fiber; by F. H. Bowman; 458 pages, 5 by 7; Macmillan & Co., New York and London. Price $2.60.

This is a new edition of a standard work on the wool fiber which originated twenty-four years ago in a series of lectures delivered by Prof. Bowman at Bradford, Huddersfield and Nottingham, England. The author has continued his investigations of fibers since that time and has now rendered a really valuable service to the trade by revising his book, bringing it up to date and incorporating much new material. The following abstract from the table of contents shows the scope of the work:

Classification of Fibers, Structure of the Skin, Origin and Development of the Hair, Variations in Hair Structure, History, Classification and Variations of Sheep and Goats, Classification and Description of Foreign Sheep, Sheep and Wool Culture, Mechanical Structure of the Wool Fiber, Chemical Composition of Wool, Action of Reagents upon Wool, Qualities and Varieties of Wool and their Distinctions, Strength and Testing of Worsted Yarns, Theory of Dyeing and Color, Methods of Analysis and Detection of Various Fibers.

Business Literature.

Circular Ribbed Knitting Machinery; The Wildman Mfg. Co., Norristown, Pa.

An attractive catalogue describing and illustrating the various types of knitting machines manufactured by this well known concern. The book also contains some useful yarn tables and rules for measuring yarn.

Chain Blocks, Electric Hoists, Trolleys and Cranes; The Yale & Towne Mfg. Co., New York City.

An elaborate catalogue describing and illustrating the various types of chain hoists, both hand and electric, trolleys, trolley trucks, etc. The booklet contains much useful information.

Catalogue "G"; The Hill Clutch Co., Cleveland, O.

This catalogue describes and illustrates friction clutches. The Hill 1908 standard clutch is given special attention. While the principle of this clutch is the same as this well known concern has built for the past twenty-two years, the construction embodies a number of important improvements recently made.

Information for Dyers; The American Society of Dyers, Philadelphia, Pa.

This book contains a copy of the constitution of the American Society of Dyers, also hydrometer and thermometer tables and a number of articles on dyeing processes and materials.

Calendars.

The Walker Lithograph and Publishing Co., 221 High St., Boston, are sending out a very handsome calendar done in colors and representing the four seasons.

The American Colortype Co., Boston, Mass., are distributing a large wall calendar suitable for office or library which is a reproduction of the famous painting "A Honeymoon in Venice."

The Stoughton Mills, 170 Summer St., Boston, are sending out a large wall calendar, 19 by 34 inches, with a page for each month.

The Willcox & Gibbs Sewing Machine Co., 658 Broadway, New York. A large wall calendar, 19 by 34 inches, at the top of which are views of their various sewing machines.

Klauder-Weldon Machines for the South.

The Klauder-Weldon Dyeing Machine Co., Amsterdam, N. Y., has recently been receiving some good orders from the Southern states. Among those received within the last few weeks are for one 1,000 lb. raw stock machine for the Eagle & Phenix Mills, Columbus, Ga., one 1,000 lb. raw stock dyeing machine for the Roberdel Mfg. Co., Rockingham, N. C., and two 1,000 lb. all iron raw stock machines for sulphur colors for the Royal Bag & Yarn Mfg. Co. of Charleston, S. C. Last month they placed in the Pee Dee Mills of Rockingham, N. C., a 1,000 lb. all iron stock dyeing machine for sulphur colors.

Orders for Fire Hose.

Among recent business booked by the Eureka Fire Hose Mfg. Co., 13 Barclay St., New York City, are orders from Buffalo, N. Y., for five thousand feet of 2 1/2-inch, and one thousand feet of 3 1/2-inch hose, also an order from Jersey City for one thousand nine hundred and fifty feet of Eureka hose, all four-ply, manufactured for high pressure pipe line service under the new improvement. This company manufactures a special line of hose for cotton and woolen mills and factories in general.

A Deserved Promotion.

It will interest the trade in general and the many friends and customers in particular of the Woonsocket Machine & Press Co., of Woonsocket, R. I., to know that Mr. Leon W. Campbell, at a meeting of the board of directors held Monday, January 18, was unanimously elected assistant general manager of the company. This is a great compliment to Mr. Campbell. Mr. Campbell has worked faithfully for this company for a long while and the above is an expression of services much appreciated. This office presents its congratulations both to Mr. Campbell and the Woonsocket Machine & Press Co.

Parkhill Mfg. Co., Fitchburg, Mass., have placed a repeat order for humidifiers with the American Moistening Co.

A New Worsted Yarn Mill.

The Allendale Worsted Mills is the name of a new corporation recently incorporated at Allendale, R. I., to manufacture a line of fine worsted yarns from 32s up. They have been capitalized for $200,000. The machinery equipment will be furnished by Hall & Stell of Keighley, England, through Edward Jefferson & Bro., their American agents. They intend to sell their own product.

Henry A. Kirby is president and treasurer, James Darsie, director, and George Darsie, general manager and secretary. They expect to be running by the middle of February. Wm. Joyce, who has been connected with the Riverside Mills for sixteen years, will be superintendent. It is their intention in the near future to build a weave shed 200 by 300 feet and equip it for the manufacture of a fine grade of worsteds.

The United States Hoffman Co.'s New Works.

On a recent trip of one of our representatives through New York State a visit was made to the new works of the United States Hoffman Co., 229 Temple St., Syracuse, N. Y. This company was organized some time ago for the manufacture of garment pressing machines, used by underwear manufacturers, clothing manufacturers, laundry men, dyers, cleansers, etc. Their underwear pressing machine is now in successful operation in many representative mills throughout the United States and Canada and no better recommendation for their machine can be had than repeat orders, which they are receiving from a great many.

On December 1 the company moved into their new factory, which is thoroughly equipped with special machinery for handling their increasing business that is fast developing both at home and abroad. Under efficient management the business is expanding very rapidly, more than three times the floor space being used now as compared with that in use only two years ago, and the contrast between the first machine put out by the old factory and the standard machines produced today is as marked as the difference in the capacity of the factories.

Great care is exercised in seeing that each machine is up to the standard, meeting every test, so that when a machine leaves the factory it has their guarantee stamped on it as to its efficiency. The fine finish given by the Hoffman press is the strong claim made for it and the rapidity with which it works is another claim which is greatly appreciated. This machine presses successfully all kinds of knit goods, including underwear, sweaters, bathing and gymnasium suits, giving either a firm, hard finish or a soft finish as may be required or desired.

The machines are shown and explained in a fine new catalogue, recently published, and which will be sent on application. The officers of the company are T. D. Palmer, president; C. H. Lewis, treasurer, and F. W. Cameron, secretary.

Manville Company, Woonsocket, R. I., have placed a repeat order for humidifiers with the American Moistening Co., Boston, Mass.

Merger of Blower Companies.

The American Blower Co., Detroit, Michigan, and the Sirocco Engineering Co., New York, have consolidated. All business will hereafter be transacted under the style and name of the American Blower Co., with the main offices at Detroit, Michigan. The personnel of the management of the new company is as follows: James Inglis, formerly at the head of the American Blower Co., is president; William C. Redfield, formerly president of the Sirocco Engineering Co., is vice president; and Charles H. Gifford, who until about a year ago was general manager of the B. T. Sturtevant Co., is treasurer. Mr. Still, the secretary, is well known among engineers as chief engineer of the American Blower Co.

About 1897 S. C. Davidson invented the "Sirocco" type of centrifugal fan and secured patents in England in 1898, and in the United States in 1900. In 1903 they were introduced on the American market by the Sirocco Engineering Co., of New York. The history of "Sirocco" is a story of continuous and rapid advances and in the field where competition is keen "Sirocco" fans have won their place into specifications for many important installations, and it is claimed to have fulfilled all requirements.

The distinguishing feature of the "Sirocco" fan is in its blast wheel or runner. This is of drum form with a large inlet chamber enclosed by numerous blades which are very long but narrow and are curved forwardly. Instead of having eight to sixteen blades it usually has sixty-four. Instead of these blades being about the same length and width they are usually six to nine times as long as they are wide. Instead of being flat or backwardly curved, they are, as stated above, curved forwardly. The results of these changes are radical. For a given size of wheel at equal speeds it is claimed the "Sirocco" discharges about four times the volume of air as former types of steel plate fans. For a given duty the turbine is about one-half the diameter of the former paddle wheel. The "Sirocco" fan occupies small space, effects a saving in weight and power and does its work silently.

By this consolidation the American Blower Co. strengthens to a large degree the enviable position they already enjoy in the blower field, as their engine, heater, and steam trap departments will receive an inestimable impetus by the increased demand for "Sirocco" blowers, due to the fact that the Sirocco Engineering Company did not manufacture engines, heaters, steam traps, etc., so universally used in connection with fans and blowers.

Engineers can specify with absolute surety from tables and data now available at the hands of representatives of or direct from the combined companies. Users of blower and fan systems can purchase any apparatus under the "ABC" or "Sirocco" trade mark with the assurance of having embodied in the construction not only high quality of material and workmanship, and great efficiency, but every latest patentable feature, without fear of patent litigation or lengthy discussion of constructional details.

Mr. S. C. Davidson of the parent "Sirocco" works, Belfast, Ireland, is financially interested in the consolidation. The factory of the Sirocco Engineering Co., at Troy, New York, and the plants of the American Blower Co., Detroit, Michigan, will continue in full operation under one management.

Dissolution of Partnership.

The firm of Quinlan & Berlin, manufacturers' selling agents for knit goods, has been dissolved. Mr. Quinlan remains at the old offices at 346 Broadway, New York, and has associated with himself Mr. R. F. Horsey. Both gentlemen are well known in the hosiery trade and their wide circle of acquaintances wish them success. Mr. J. M. Berlin will continue in business alone.

E. O. Spindler Has Richter Agency.

David Richter, the well known German builder of full fashioned hosiery machines on the cotton principle, has appointed E. O. Spindler, 350 Broadway, New York, his sole American agent and Mr. Spindler will handle their full line of machinery in connection with other makes of German knitting machinery which he already has.

Of Interest to Mills.

A very complete and instructive text book on the subject of humidity and its relation to the textile industry is being sent out by the Carrier Air Conditioning Co. of America of 39 Cortlandt Street, New York. The book, which is bound in a handsome brown paper cover, consists of four parts.

The first is devoted to the construction and detail description of the Carrier Air Washing and Humidifying Apparatus.

The second section is a very complete analysis of the laws governing humidity but with all the technical terms so defined that it is equally instructive to the engineer and non-technical reader. The definition of such terms as dry bulb, wet bulb and dew points and their relation to each other and to mill work are made plain.

The third section deals with mill conditions and the practical application and requirements of a successful humidifying system.

The fourth section is devoted to the relation between atmospheric humidity and regain of wool, cotton and silk. This section alone makes the book of great value to those in charge of textile mills.

The book contains very complete and convenient hygrometric tables and tables and curves showing the relation of regain fibers to relative humidity. It will be sent upon request to anyone interested on the subject.

Singeing Machines.

The Automatic Machine Works of Reading, Pa., are quite busy on orders lately received for their automatic singeing machines and cold hosiery presses which they have shipped to mills in various sections of the country.

Paper Cop Tubes and Cones.

The American Textile Specialty Machinery Co., of Providence, R. I., have made for themselves a most enviable reputation in the manufacture of shuttles and spindles. They announce to their many friends and the trade in general that they are adding to their rapidly growing business a complete plant for the manufacture of a full line of paper cop tubes, cones and shells. The trade were informed of this new departure some time ago and although the factory has been running only several weeks, they are very much gratified at the volume of business which has already come in. The order books for goods in this line are already in a very satisfactory shape.

Among the guarantees that the company makes in regard to their new product are the high quality of the work, prompt shipments and the varied line which they can produce. They particularly invite manufacturers throughout the country to send them samples of the tubes and cones which they are now using and they will be much pleased to quote prices on any quantity desired.

A visit of one of our representatives to the above establishment found this concern a hive of industry and we take pleasure in recommending this concern and its product to any mills in need of any articles of this nature.

Sizing Materials.

When mixed with Arabol starch, corn starch or potato starch, "Sizeoleum," manufactured by the Arabol Manufacturing Company, 100 William St., New York, is said to make a very satisfactory sizing for cotton warps, sheetings, domestics and print cloth warps. It is especially recommended for the South, as it has the advantage of resisting the influences of the climate.

Worcester's Exposition.

Worcester has under way an exposition that will be far reaching in its effects on the business interests of city, county and state. It is promoted by business men, the details are under the supervision of business men and business men are the exhibitors.

The Worcester County Mechanics' Association are the prime movers in the affair and better sponsors it would be hard to find. The business of Worcester County is to be bettered, strengthened and broadened. The facilities for manufacturing possessed by firms and corporations in the central part of Massachusetts is not surpassed in any section of the country and it will be the object of the Worcester Mechanical and Electrical Exposition to impress that fact upon the buyers and users of manufactured goods.

All the detail has been put into the hands of Mr. H. F. Campbell, an experienced manager, and the plans he has presented certainly seem to bear the imprint of success. Mr. Campbell states that he will use Mechanics Hall for the mechanical department, showing machinery in operation manufacturing goods, and use Washburn Hall on the floor below for the electrical department. It is proposed to have a continuous exhibition from 1.30 p. m. until 10.30 p. m. Mr. Campbell has opened his permanent office in Mechanics Hall.

The G. M. Parks Co. of Fitchburg, Mass., agents for the turbo humidifying system of air moistening, have recently closed a contract for complete equipment of the Stanard Spinning Co.'s plant at Oswego, N. Y. This order also includes the air cleaning feature which is interesting mill men since it can be installed with so little additional expense to the equipment.

Reclaimed Olive Oil.

The price of olive oil was certainly high enough last year owing to the partial failure of the olive crop, but now comes the terrible earthquake calamity in Sicily which is likely to still further reduce the supply of olive oil, and send the price higher.

This has turned the attention of manufacturers who are large users of this oil in woolen and worsted manufacture to the economy and advantage of using reclaimed olive oil which is a pure, distilled recovered oil, and not a compounded or mixed oil. It is very largely used on the Continent and in England, and is also being used with excellent results in this country.

Messrs. H. G. McKerrow Co., Ltd., 88 Broad St., Boston, Mass., have been fortunate enough to secure, through their foreign connections, a considerable supply of this pure, distilled reclaimed oil which can be used wherever olive oil is used. The price is 45 to 65 cents a gallon, which is below the cost of the ordinary olive oil.

Turbo Humidifier Book.

The G. M. Parks Co., of Fitchburg, Mass., have recently published in their own unique and attractive style a booklet telling the story of turbo humidifiers up to date. This humidifying system has now been on the market long enough to demonstrate its practical working under a variety of conditions and this booklet for that reason is of more value after the experience they have had, than the literature which was brought out first when there was more theory and less practice.

It also gives a list of mills that are using or installing it and answers questions that any man would want to know who is considering installing a system of air moistening and humidification. A copy will be sent upon application. Those who are familiar with Park's "Piping Parables" know that the booklet is readable.

J. Townsend Walker.

We take pleasure in drawing the attention of our readers to the advertisement in this issue of Mr. J. Townsend Walker, who has recently opened an office at Room 528, Bannigan Bldg., Providence, R. I., where he will conduct a general selling agency for cotton yarns. Mr. Walker advertises as the "Spinner's Representative" and will handle the product of a number of spinners, both

for the weaving and knitting trade. He handles all numbers and kinds of cotton yarns. Mr. Walker has been associated with one of our representative New England yarn houses for nearly five years and feels that he can go into the trade with a knowledge and experience that will be of value both to himself and customers.

In New Quarters.

Messrs. Schuhardt & Schuette, importers and American agents of textile finishing machinery, have removed to new and larger quarters at West St. Building, 90 West St., where they will occupy two floors. Their new quarters are most attractively fitted up with every convenience for showing their extensive line of machinery.

Measuring the Results of Advertising.

If advertising operated like a machine using specific material and running at known rate of speed the quality and quantity of output might be easily determined. The results of advertising are, however, subtle and elusive. That as a general proposition advertising pays no one will dispute, else we must admit ourselves a nation of fools. But the ultimate value of advertising no one can estimate, for the power of publicity transcends all bounds.

Certain definite and direct returns we see and measure, certain effects we know to have been produced; though we feel their force we cannot determine its magnitude, but extending far beyond these are influences varied in their extent and character and cumulative with the passage of time that must forever remain unknown. That we can see and determine we must accept as some measure of the total results of advertising. If measurable returns do not appear satisfactory we must consider the conditions, if need be, improve our product and our methods, but above all decide whether our advertising policy is to be determined solely by such returns, or be based upon a larger foundation of which common sense shall be the corner stone.

Detailed study of specific methods is essential and helpful, but it must always be undertaken and the results analyzed in the light of a clear understanding of all the conditions. If a given expenditure in circular letters and return stamped envelopes brings more traceable results than an equal amount expended in trade paper advertising, we must not at once adopt the former as the only method to be followed. A high grade publication which shows but few traceable replies is not to be condemned because another publication of manifestly lower editorial quality brings a great number. The character of the readers and of the article advertised, the circulation of the papers and many other factors must be taken into consideration.

Slowly or quickly as the case may be, publicity becomes a more or less tangible asset whose established value is dependent upon many factors. It is an element in the "good will" of a going concern. As an immediate estate is created through life insurance, so a business may be quickly established and trade insured through immediate and extensive but judicious advertising. But business and reputation so created must be founded on quality. Then and then only does the asset created by publicity become of real value and permanency. It has been well said that while we charge off depreciation we should charge on publicity.

The cumulative effect of advertising is its greatest possession, it is not merely sufficient unto the day thereof but its influence spreads beyond the limits of our time and knowledge. It is well then that it should be done with all the ability available, that no pains should be spared to make it perfect, for only thus can the advertising problem be solved with a reasonable degree of accuracy—From an article in the Selling Magazine by Walter B. Snow, Publicity Engineer, Boston, Mass.

The American Moistening Co., Boston, Mass., report a large volume of business in hand, a marked increase in orders since January 1st, having received orders from that date for equipments for seven different manufacturing concerns for humidifying installation for cotton, worsted and silk mills.

New Automatic Knitter.

The Boss Knitting Machine Works of Reading, Pa., have been placing many of their 15/16 automatic knitters for hosiery manufacture during the past few months. Many of them are duplicate orders from parties who have been using them for a number of years. They have just completed a full automatic knitter suitable for operation on either the bench or the floor. The floor machine is, however, the latest improvement and an illustrated description of this new full automatic knitter will appear in our next issue.

Loom Smash Preventor.

This valuable device, which was described and illustrated in the December issue of the Textile World Record, has been getting the indorsement of leading manufacturers in a very practical way. One of the most up-to-date concerns has had fifty of these smash preventors or protectors on their looms for a considerable time and have recently ordered fifty more for another mill. Several other mills in that vicinity having learned how well they were working, have placed orders for equipment for their looms.

This device stops the loom instantly and automatically whenever a jack, harness wire or strap breaks. Everyone who is familiar with the trouble caused by one of these frequent accidents understands how it will pay for itsefl in a very short time. This is a device which saves the loom fixer trouble instead of causing him any additional, and every practical man will realize its value in producing more perfect goods.

Further information can be obtained from Bamford & Smith Co., Providence, R. I.

Nassau Mills, Brooklyn, N. Y., have adopted the American Moistening Co.'s system of humidifiers.

R. & H. Simon, Easton, Pa., have placed repeat order for humidifiers with the American Moistening Co., Boston, Mass.

The Textile Mill Machine Shop.

The textile mills are at last learning a truth long realized by machinery experts that it is a profitable investment to have a first-class machine shop to do repair work, instead of employing the make-shift, expensive methods of repair which constitute an inheritance of the industry that has been hard to dissipate. Some of the modern mills have very good shops, and in the designing of new plants mill engineers are showing a constantly growing disposition to provide adequate and appropriate quarters for this department. Machinery builders and dealers find that the more enterprising of the textile manufacturers are showing practical interest in the better grade of machines. Altogether the outlook for an increasing and profitable market from this class of customers is much more encouraging than it has been.

The manufacturers of textile machinery have always depended for an important part of their profits upon the sale of repair parts. Probably in the course of time they will follow in the footsteps of the machine tool trade and establish a policy of very low prices for duplicate parts, placing their profit on the original machine. The machine tool builders formerly followed the other practice, but found that it did not pay. But whatever transition of policy time may bring forth in the textile machinery industry, there is little sign of its beginning, and the mills must either pay well for their repair parts or manufacture them. This is one of the prime factors in the change in their machine shop methods.

The mill repair shop has always been a dismal spot, located in the basement or in some other ill-lighted location, and equipped with tools that have long ceased to be classed with modern machinery. To operate such a shop is expensive. The tendency has been to replace tools only when absolutely necessary, and then with second-hand machinery. The buyer who would accept nothing but the best of textile machinery for his mill would purchase anything in the way of a machine tool if it was cheap enough. Machinery salesmen have striven for years to educate the industry to a better shop practice, and undoubtedly their work has been to an important extent responsible for the beginning of a realization of the value of modern machinery in its incomparably better results as to quality and economy of the work performed.

A large amount of textile mill construction is planned for 1909, and the field for the machine tool dealer promises to be more profitable proportionately than ever before. If the modern mill has learned the value of studying this department of the plant, the difference to the machine tool trade should be an important one.—The Iron Age.

Recent Textile Patents.

EMBROIDERING-Machine Fabric-Roller. 909,826. Adolph Sauer, Arbon, Switzerland.

FABRIC Cutting Machine. 910,325. Samuel J. Still, Buffalo, N. Y.

FABRIC. 909,379. Nina L. Duryea, Nice, France.

FABRIC. Woven Pile. 908,888. Andrew G. Roberston, Auburn, Me.

KNITTING MACHINE Thread-controlled Stop-motion. Circular. 909,727. Norman H. Williams, Perry, N. Y.

KNITTING MACHINE. Circular-rib. 908,994. Daniel Hurley and Wm. T. Barratt, Bennington, Vt.

KNITTING-Machine Stop-motion. Circular. 908,989. Henry Garant, Chattanooga, Tenn.

LOOM-FILLING Exhaustion-indicating Device. 909,096. Joseph E. Lemyre, Manchester, N. H.

LOOMS for Weaving. Dobby of. 908,687. William J. Moxon and Tom A. Paterson, Kirkburton, England.

LOOM. 909,821. Alonzo E. Rhoades, Hopedale and Wallace I. Stimpson, Milford, Mass.

LOOM Friction Let-off Mechanism. 908,724. Peter Ashby, Central Falls, R. I.

LOOM Pattern Card. 908,559. Jean Gohy, Verviers, Belgium.

LOOM Let-off Motion. 909,596. Henry Herzberg, New York.

LOOM-PICKER. 909,333. Osias Poitras, Fitchburg, Mass.

LOOM-SHUTTLE. 909,377. William F. Draper, Hopedale, Mass.

LOOM Warp-stop Motion. 909,822. Alonzo E. Rhoades, Hopedale, Mass.

SILK-THREAD Finishing Machine. 390,295. Edward Pohl, Paterson, N. J.

SPINNING and Twisting Machine Thread Guide. 910,312. John E. Prest, Melrose, Mass.

SPINNING Machine. 910,377. Timothy A. Harrington and Alexander Barrie, Natick, R. I.

SPINNING and Twisting Machine Thread-board and Thread-guide Support. 910,450. Herbert G. Beede, Pawtucket, R. I.

Recent Textile Trade Marks Registered.

"Army." Cotton-warp flannels. Hudson River Woolen Mills, Newburgh, N. Y.

"Peerless." Hosiery. The Joel Baily Davis Co., Philadelphia, Pa.

"Violo." Cotton flannels. Tootle Wheeler & Motter Mer. Co., St. Joseph, Mo.

"Vesta." Cotton flannels. Tootle Wheeler & Motter Mer. Co., St. Joseph, Mo.

"Bruno." Cotton flannels. Tootle, Wheeler & Motter Mer. Co., St. Joseph, Mo.

"Raphael." Ginghams. Tootle, Wheeler & Motter Mer. Co., St. Joseph, Mo.

"Adora." Piece goods of mixed silk and cotton. Carson, Pirie, Scott & Co., Chicago, Ill.

C. E. RILEY COMPANY

65 Franklin Street, .. BOSTON, MASS.

COTTON AND COTTON GOODS YARNS

DIRECT IMPORTERS OF EGYPTIAN COTTON

COTTON WOOLEN WORSTED MACHINERY

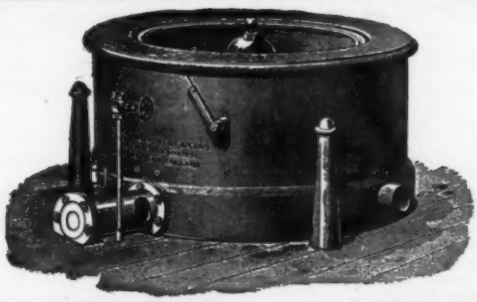
Thomas Broadbent & Sons,

Huddersfield, Eng.

PATENT DIRECT STEAM DRIVEN

HYDRO-EXTRACTORS

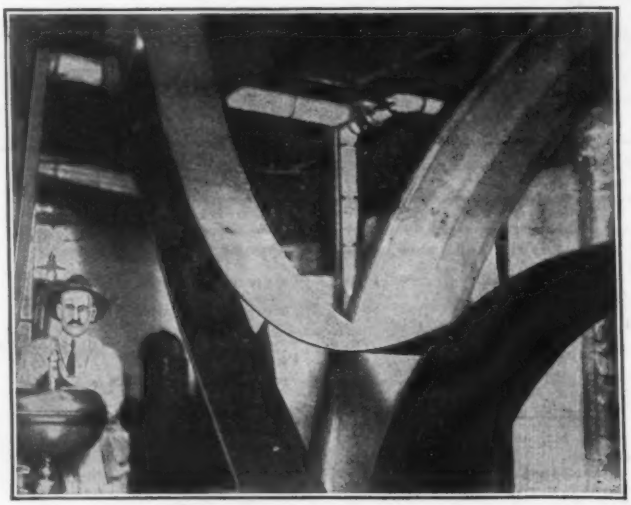
OVER 3500 IN USE. ALSO ELECTRICALLY DRIVEN



SUSPENDED ON LINKS. REQUIRING NO EXPENSIVE FOUNDATIONS

C. E. RILEY COMPANY, Sole Agents 65 Franklin St., Boston, Mass.

Machines Kept in Stock in Boston



Cling-Surface Results

A good example of Cling-Surface results:

Cling-Surface treatment of belts makes and keeps them pliable, waterproof and preserved. They never dry out nor crack. Cling-Surface is not sticky, but penetrates all through the belt, where needed most, and makes the belt face like calf skin. Slipping is prevented, and every belt can be run slack and carry full loads with ease at all points.

We guarantee these results. They give the best possible belt service and only Cling-Surface does it. Ask for our special trial terms.

CLING-SURFACE COMPANY, 1051 Niagara Street BUFFALO N Y

BOSTON 170 Summer Street | NEW YORK 39 Cortlandt Street | PHILADELPHIA 520 Arch Street

The Cotton Manual

BY J. T. BROADBENT

of the Bradford-Durfee Textile School, Fall River, and formerly of the Mississippi Textile School.

This little Manual was prepared with the idea of telling briefly, but comprehensively, the things about the cotton fibre, its cultivation, and the ginning and markering of the cotton crop, the different kinds of cotton, and other matters bearing on raw cotton, such as the average student or person connected with cotton manufacturing or the sale of cotton goods, wants to know.

There are excellent chapters on cotton baling, describing the different kinds of bales and baling processes, and on the opening and mixing of cotton in the mill, with account of different machines employed, and improved methods of mixing.

The book contains about 100 pages, with 20 illustrations, and should be in the possession of every person having to do with cotton in any state, from the seed to the retail purchaser.

Price 75 Cents

Published by LORD & NAGLE COMPANY

144 CONGRESS STREET, BOSTON, MASS.

Buyers' Index

The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under desired headings will please notify the publishers. Such omissions are accidental, not intentional.

Air Moistening System.
American Moistening Co.
Bell Pure Air & Cooling Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.
Parks, G. M., Co.

Architects and Mill Engineers.
Dean, F. W.
Ferguson, John W.
Cramer, Stuart W.

Asphalt Tanks.
Scaife, W. B., & Sons.

Automatic Feeds for Cotton and Wool.
Bates & Robinson Machine Co.
Kitson Machine Co.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Schofield, Wm., Co.
Woonsocket Machine & Press Co.

Bale Ties.
Acme Steel Goods Co.

Baling Presses.
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.
Minnich Machine Works.
Sullivan Machinery Co.

Bandings.
——See under Yarns.

Baskets.
Lane, W. T., & Bro.

Beams (Steel).
Mossberg, Frank, Co.

Bearing Metals.
Dodge Mfg. Co.

Belting.
Burnham, E. E., Co.
Candy Belting Co.
Rhoads, J. E., & Sons.
Shultz Belting Co.
——See also Mill Supplies.

Belt Dressing.
Cling Surface Mfg. Co.
Dixon, Jas., Crucible Co.
Schieren, Chas. A., Co.
Shultz Belting Co.
Stephenson Mfg. Co.

Belt Lacing Machines.
Birdsboro Steel Foundry & Machine Co

Bindings.
——See Tapes and Braids.

Bleaching Kiers.
Arlington Mch. Wks. (Arthur Birch, prop.)
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Carbondale Calcium Co.
Danker & Marston.
Roessler & Hasslacher Chemical Co.
Siemens & Halske.

Blowers and Blower Systems.
American Blower Co.
Buffalo Forge Co.
Dean Bros. Steam Pump Works.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.
Schnitzler, Chas. H.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
American Textile Specialty Mchy. Co.
Leigh, Evan A.
Lestershire Spool & Bobbin Co.
Mossberg, Frank, Co.
Tebbets, E. L., & Co.
Wilson & Co.

Bobbin Winders.
Lever, Oswald Co.
Universal Winding Co.

Boiler Inspection and Insurance.
——See Steam Boiler Insurance.

Boilers.
——See Steam Boilers.

Boxes, Cloth Boards, Etc.
Pearson, J. T.

Box Strapping.
Acme Steel Goods Co.

Braiding Machinery.
Mason Mfg. Co.
New England Butt Co.
Textile Machine Works.

Braids.
——See Tapes, Braids and Edgings.

Brass Hinges.
Root, C. J., Co.

Bridges.
Scaife, W. B., & Sons.

Brushers.
——See Napping Machines.

Brushes.
Felton, S. A., & Son Co.
Mason Brush Works.

Burr Pickers.
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

Calico Printers' Machinery and Supplies.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros., Somerville Machine Wks.
Butterworth, H. W., & Sons Co.
Taunton-New Bedford Copper Co.
Textile Finishing Mchy. Co.
——See also Dyeing, Bleaching, Machinery, etc.

Canvas Baskets.
Lane, W. T., & Bro.

Caps.
Calder Machine Works.

Carbonizing Machinery.
Birch Bros., Somerville Machine Wks.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Tolhurst Machine Works.

Card Clothing.
Ashworth Bros.
Bates & Robinson Machine Co.
Howard Bros. Mfg. Co.
Leigh, Evan A.
Richards, Atkinson & Haserick.
Riley, C. E., Company.

Carded Cotton.
Blaisdell, S., Jr., Company.

Card Feeds.
——See Automatic Feeds.

Card Grinding Machinery.
Entwistle, T. C., Co.
Leigh, Evan A.
Riley, C. E., Company.
Smith & Furbush Machine Co.
Richards, Atkinson & Haserick.

Carders' Tools.
Brown, Wm. H., Co.

Carpet Machinery.
Altemus, Jacob K.
Curtis & Marble Machine Co.
Philadelphia Textile Machinery Co.
Smith & Furbush Machine Co.

Castings.
Farrel Foundry and Machine Co.
Schofield, Wm., Co.

Cell Driers.
Cell Drier Machine Co.

Cement.
Atlas Portland Cement Co.

Cement Pans.
Scaife, W. B., & Sons.

Chemicals.
Harding, Fancourt & Scull.
Roessler & Hasslacher Chemical Co.

Chemists.
Little, Arthur D.
McKenna, Dr. Chas. F.

Cling Surface.
Cling Surface Mfg. Co.

Clocks.
Pettes & Randall Co.

Cloth Boards.
Chaffee Bros.
Pearson, J. T.
Richardson Brothers.

Cloth Cutting Machinery.
Adams, A. L.
Cameron Machine Co.

Cloth Expanders.
American Finishing Machinery Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Leyland, Thomas, & Co.
Textile Finishing Machinery Co.

Clutches.
American Tool & Machine Co.
Dodge Mfg. Co.
Hunter, James, Machine Co.
Mossberg Wrench Co.

Coal.
Darrow Mann Co.

Combs (Wool and Cotton).
Hood, R. H., Company.
Jefferson, Edward & Brother.
Leigh, Evan A.
Philadelphia Textile Machinery Co.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Stewart & Sons.

Concrete Work and Construction.
Atlas Portland Cement Co.
Gilbreth, Frank B.

Condensers.
Dean Bros. Steam Pump Works.

Conditioning of Textile Fabrics.
New York Silk Conditioning Works.

Conveying Systems.
Buffalo Forge Co.
Dodge Mfg. Co.
Snitzler, C. H.
Sturtevant, B. F., Co.

Cop Machinery.
Eppler, John, Mach. Works.

Cop Spindles.
American Textile Specialty Mchy. Co.
Hall, F. A. & P.

Cop Tubes.
American Textile Specialty Mchy. Co.
Hall, F. A. & P.
——See Paper Tubes.

Copper Print Rollers.
Taunton-New Bedford Copper Co.

Coppersmiths.
Badger, E. B., & Sons Co.

Copper Work for Dyers.
Badger, E. B., & Sons Co.
Butterworth, H. W., & Sons Co.
Harrington & King Perforating Co.
Textile Finishing Machinery Co.

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Riley, C. E., Company.
Schwartz, L. H. A., & Co.
Stoddard, Haserick, Richards Co.

Cotton Machinery.
Altemus, Jacob K.
American Textile Appliances Co.
American Textile Specialty Mchy. Co.
Ashworth Bros.
Bates & Robinson Machine Co.
Brockway & Meckenstrum.
Butterworth, H. W., & Sons Co.
Cramer, Stuart W.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Dixon Lubricating Saddle Co.
Draper Company.
Easton-Burnham Co.
Elliott & Hall.
Entwistle, T. C., Co.
Firth, William, Co.
Howard & Bullough American Mach. Co.
Kilburn, Lincoln & Co.
Kip-Armstrong Co.
Kitson Machine Co.
Leigh, Evan A.
Lowell Machine Shop.
Mason Machine Works.
McKerrow, H. G., Co., Ltd.
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Palmer, I. E., Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Providence Machine Co.
Riley, C. E., Company.
Saco & Pettee Machine Shops.
Schofield, Geo. L.
Schwartz, L. H. A., & Co.
Smith & Furbush Machine Co.
Stafford Co., The.
Stoddard, Haserick, Richards & Co.
Textile Finishing Machinery Co.
Textile Machinery Co.
Whitin Machine Works.
Woonsocket Machine & Press Co.

Cotton Openers and Lappers.
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Kitson Machine Co.
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Riley, C. E., Company.

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Bosson & Lane.
Burckhardt & Co.
Danker & Marston.
Harding, Fancourt & Scull.

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Root, C. J., & Co.
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Howe Mill Crayon Co.
Lowell Crayon Co.

Cutting Machines.
Adams, A. L.
Cameron Machine Co.
Durbrow & Hearne Mfg. Co.
Oswego Machine Works.

Cylinder Oil (Superheated Steam).
Power Specialty Co.

Dextrine.
Stein, Hirsh & Co.

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Crompton & Knowles Loom Works.
Kilburn, Lincoln & Co.
Stafford Co., The.

Dobby Chain.
Nuttall, George.

Draughtsmen.
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Pearson, J. T.
Philadelphia Drying Mchy. Co.

Dusters.
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Dust Collectors.
American Blower Co.
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Dyers, Bleachers and Finishers.
Brophy's, T., Sons.
Davidson, J. F.
Firth & Foster Co.
Germania Dye Works.
Globe Dye Works Co.
Home Bleach & Dye Works.
Lorimer's, The Wm. H., & Sons Co.
Pawtucket Dyeing & Bleaching Co.
Peerless Co.
Rowland, Samuel.
Solway Dyeing & Textile Co.
Utica Willowvale Bleaching Co.
Western Thread & Dye Works.

Dyeing, Drying, Bleaching and Finishing Machinery.
American Blower Co.
American Laundry Mchy. Mfg. Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch, Arthur, Arlington Mch. Wks.
Birch Bros., Somerville Machine Wks.
Buffalo Forge Co.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Curtis & Marble Machine Co.
Entwistle, T. C., Co.
Gessner, David.
Heathcote, John, & Son.
Hopkins Machine Works.
Hussong Dyeing Machinery Co.
Hunter, James, Machine Co.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Machine Co.
Klipstein, A., & Co.
Leigh, Evan A.
Leyland, Thos., & Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Rodney Hunt Mach. Co.
Schwartz, L. H. A., & Co.
Schuchardt & Schutte.
Smith, Drum & Co.
Steel Roll Mangle Co.
Sturtevant, B. F., Co. (Drying).
Taylor & Fenn Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

Dye House Cans.
Hill, James, Mfg. Co.

Dye House Trucks.
Bailey, Frank.

Dye Sticks.
Bailey, Frank.
Haedrich, E. M.

Dye Tubs.
—See Tanks, Tubs and Vats.

Dyestuffs and Chemicals.
American Dyewood Co.
Arabol Manufacturing Co.
Atteaux, F. E., & Co.
Badische Co.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Carbondale Calcium Co.
Cassella Color Co.
Danker & Marston.
Farbenfabriken of Elberfeld Co.
Kalle & Co.
Ford, J. B., Co.
Geisenheimer & Co.
Jamaica Dyewood & Chemical Co.
Johnson, Chas. A., & Co.
Klipstein, A., & Co.
Leyland, Thos., & Co.
Metz, H. A., & Co.
Roessler & Hasslacher Chemical Co.
Stein, Hirsch & Co.
Sykes, Walter F., & Co.
Thayer, Ed. M., & Co.
Young, J. S., & Co., Ltd.

Dynamos.
—See Electric Lighting.

Edgings.
—See Tapes, Braids and Edgings.

Electrical Construction.
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Company.
Watson-Flagg Engineering Co.
Westinghouse Electric & Mfg. Co.

Electrical Heating Devices.
Crocker-Wheeler Co.

Electric Driven Pumps.
Dean Bros. Steam Pump Works.

Electric Fans.
American Blower Co.
Buffalo Forge Co.
Crocker-Wheeler Co.
General Electric Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sturtevant, B. F., Co.
Watson-Flagg Engineering Co.
Westinghouse Electric & Mfg. Co.

Electric Hoists.
Crocker-Wheeler Co.

Electric Lighting.
American Blower Co.
Buffalo Forge Co.
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Co.
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Elevators.
Salem Elevator Works.

Embossing Machines.
Cameron Machine Co.

Employees' Time Recorders.
Pettes & Randall Co.

Engines.
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Engine Repairs.
Fishkill Landing Machine Co.

Exhaust Heads.
Buffalo Forge Co.
Sturtevant, B. F., Co.
Power Specialty Co.

Fans—Exhaust and Ventilating.
—See Ventilating Apparatus.

Feed Water Heaters.
Scaife, W. B., & Sons.

Feed Water Pumps.
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.

Feed Water Purifiers.
Dodge Mfg. Co.
Scaife, W. B., & Sons.

Feeds.
—See Automatic Feeds.

Feed Water Regulators.
Berry Engineering Co.

Felt Hardeners.
Farrel Foundry and Machine Co.

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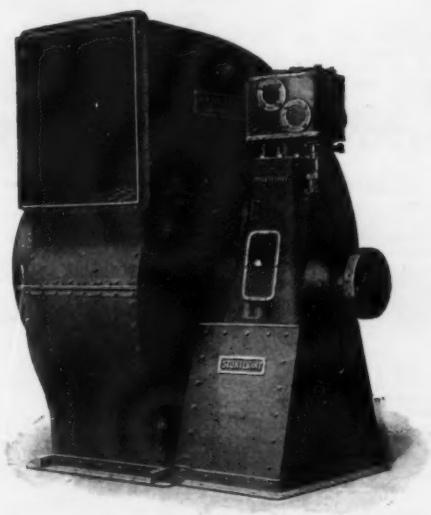
Sturtevant Electric Ventilating Fans

Propeller Fans

For low pressures. Built in a full line of sizes from 18 inches to 120 inches with capacities from 2,000 to 175,000 cubic feet per minute. Motors are dust proof and non-heatable. Fans up to 48 inches for 110 and 220 volts are carried in stock at works and branch warerooms.



Steel Plate Cased Fans

For higher pressures. Built to order to meet any requirements. Fans are of standard make; Motors are specially wound to give desired speed. Both fan and motor are Sturtevant products.

Send for Bulletin No. 146.

B. F. STURTEVANT CO., BOSTON, MASS.

General Office and Works, Hyde Park, Mass.

NEW YORK PHILADELPHIA CHICAGO CINCINNATI LONDON

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fan Blowers and Exhausters, Rotary Blowers and Exhausters; Steam Engines, Electric Motors and Steam Turbines; Pneumatic Separators, Fuel Economizers, Forges, Exhaust Heads, Steam Traps, etc. 625

Felting Machinery.
Farrel Foundry and Machine Co.
Fender Boards.
Case Bros.
Filters.
Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.
Finishing Machinery.
—See Dyeing, Drying, Bleaching and Finishing.
Fire Brick.
Borgner, Cyrus, Co.
Fire Extinguishers.
Badger, E. B., & Sons Co.
Fire Hose.
Eureka Fire Hose Co.
Fire Hydrants.
Norwood Engineering Co.
Fire Insurance.
Home Insurance Co.
Fire Proof Doors and Windows.
Badger, E. B., & Sons Co.
Flax, Tow, Hemp and Jute Machinery.
Fairbairn-Lawson-Combes-Barbour, Ltd.
Fluted Rolls.
Bates & Robinson Machine Co.
Hood, R. H., Company.
Leigh, Evan A.
Jefferson, Edward & Brother.
Riley, C. E., Company.
Thurston, A. G., & Son.
Flyers.
Bodden, Wm., & Son, Ltd.
Calder Machine Works.
Hopkins Machine Works.
Jefferson, Edward & Brother.
Leigh, Evan A.
Textile Machinery Co.
Fly Wheels.
Dodge Mfg. Co.
Forges.
Sturtevant, B. F., Co.
Friction Chains.
Oneida Community, Ltd.
Friction Clutches.
—See Clutches.
Friction Cones.
Evans, G. Frank.
Fuel.
Darrow Mann Co.
Fuel Economizers.
Buffalo Forge Co.
Sturtevant, B. F., Co.
Fulling Mills for Woolen Goods.
Hopkins Machine Works.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
Rodney Hunt Mach. Co.
Furnaces (Automatic Smokeless).
Murphy Iron Works.
Garnetts.
Bates & Robinson Machine Co.
Hunter, James, Machine Co.
Leigh, Evan A.
Smith & Furbush Machine Co.
Gas Blowers and Exhausters.
American Blower Co.
Sturtevant, B. F., Co.
Gaskets (Superheated Steam).
Power Specialty Co.
Gassing Machines.
Stubbs, Joseph.
Gauges.
Crosby Steam Gage & Valve Co.
Walworth Manufacturing Co.
Gears.
Dodge Mfg. Co.
Farrel Foundry and Machine Co.
New Process Raw Hide Co.
Gear Cutting.
Farrel Foundry and Machine Co.
Gear Cutting Machine.
Whiton, The D. E., Co.
Generating Sets.
American Blower Co.
Buffalo Forge Co.
Crocker-Wheeler Co.
Sturtevant, B. F., Co.
Geyser Water Heater.
Sargent's Sons, C. G., Corp.
Greases.
N. Y. & N. J. Lubricant Co.
Harness Twine.
Moore C., & Co.
Harness and Frames.
Steel Heddle Mfg. Co.
Garland Mfg. Co.
Heating.
—See Ventilating Apparatus.
Heddles.
Howard Bros. Mfg. Co.
Richards, Atkinson & Haserick.
Steel Heddle Mfg. Co.
Hoisting Apparatus.
Economy Engineering Co.
Hosiery Boards.
Pearson, J. T.
Philadelphia Drying Machinery Co.
Hosiery Labels.
Kaumagraph Company.
Humidifying Apparatus.
American Moistening Co.
Bell Pure Air & Cooling Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.
Parks, G. M., Co.
Hydraulic Rams.
Power Specialty Co.
Walworth Mfg. Co.
Hydro Extractors.
American Laundry Mchy. Mfg. Co.
American Tool & Machine Co.
Broadbent, Thomas, & Sons.
Dienelt & Eisenhardt, Inc.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Textile Finishing Machinery Co.
Tolhurst Machine Works.
Ice Machines.
Remington Machine Co.
Insulating and Braiding Silks.
Sauquoit Silk Mfg. Co.
Insurance (Casualty, Fire and for Loss of Profits.)
Home Insurance Co.
Investments.
Cross Creek Coal Co.
Ironing Machines for Knit Goods.
American Laundry Machinery Mfg. Co.
Consolidated H. S. & L. M. Company.
Iron Glue.
Ament, H. B.
Jacquards.
Halton's, Thomas, Sons.
Jacquard Cards.
Case Bros., Inc.
Knit Goods, Edgings, Trimmings, Etc.
Chapin, Geo. W.
Charles, W. B.
Cheney Bros.
Friedberger-Aaron Mfg. Co.
Krout & Fite Mfg. Co.
Weimar Bros.
Knit Goods, Finishing Machines Crochet, Etc.
American Laundry Machinery Mfg. Co.
Hoffman, U. S.
Merrow Machine Co., The.
Nye & Tredick Co.
Scott & Williams.
Union Special Machine Co.
Willcox & Gibbs Sewing Machine Co.
Knitting Machine Cylinders.
Paxton & O'Neill.
Stafford & Holt.
Knitting Machinery.
Boss Knitting Machine Co.
Brinton, H., & Co.
Claes & Flentje.
Climax Machine Co.
Cooper, Chas.
Crane Mfg. Co.
Dubied, Edouard, & Co.
Eppler, John, Mach. Works.
Excelsior Knitting Machine Mfg. Co.
General Machine Works.
Gormly, Robt. W., & Co.
Grosser Knitting Machine Co.
Hemphill Mfg. Co.
Huettig, Hugo.
Jenckes, E., Mfg. Co.
Lamb Knitting Mach. Mfg. Co.
Leckie, Jas., & Son.
Leighton Machine Co.
Mayo, Geo. D., Knitting Machine Co.
Mayo Knitting Machine & Needle Co.
National Automatic Knitter Co.
Nye & Tredick Co.
Paxton & O'Neill.
Scott & Williams.
Stafford & Holt.
Standard Machine Co.
Taylor, James.
Tompkins Bros. Co.
Walther, Otto.
Wildman Mfg. Co.
Knitting Needles and Supplies.
Breedon's, Wm., Son.
Brinton, H., & Co.
Continental Latch Needle Company.
Cooper, Chas.
Corey, Wm., Co.
Crane Mfg. Co.
Dodge Needle Co.
Excelsior Needle Co.
Grosser Knitting Machine Co.
Ives, L. T., Co.
Lamb Knitting Machine Mfg. Co.
Keystone Latch Needle Co.
Mayo Knitting Machine & Needle Co.
Wardwell Needle Co.
Lace Dressing Plant.
Simms, Geo., & Sons.
Lamps, Electric.
General Electric Co.
Westinghouse Electric & Mfg. Co.
Logs (for Rolls).
Hartwell, Geo. E.
Loom Pickers.
Barlow, John W., Co.
Garland Mfg. Co.
Looms.
Crompton & Knowles Loom Works.
Draper Company.
Kilburn, Lincoln & Co.
Leigh, Evan A.
Lowell Machine Shop.
Stafford Co., The.
Mason Machine Works.
Richards, Atkinson & Haserick.
Whitin Machine Works.
Loopers.
Beattie Manufacturing Co.
Hepworth, John W., & Co.
Leighton Machine Co.
Lubricants.
Borne, Scrymser Co.
Dixon, Jos., Crucible Co.
N. Y. & N. J. Lubricant Co.
Lubricators.
Detroit Lubricator Co.
Walworth Mfg. Co.
Lumpers.
Gerry, George, & Son.
Schofield, Wm., Co.
Machine Designers.
Adams, A. L.
Cameron Machine Co.
Machine Tools.
Am. Tool Works Co.
Machinery Dealers.
Jefferson, Ed., & Bro.
Lamb, J. K., Textile Mach. Co.
Schofield, Geo. L.
Taylor, James.
Machinists.
Adams, A. L.
Calder Machine Works.
Cameron Machine Co.

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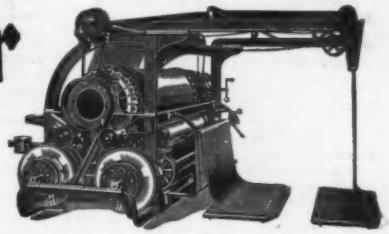
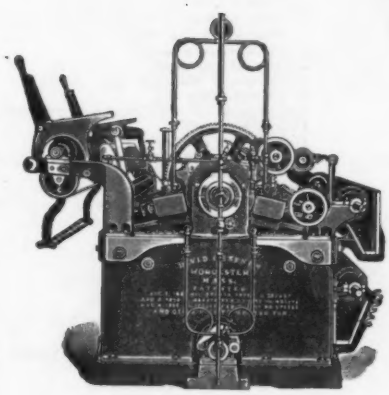
David Gessner

Worcester, Mass.

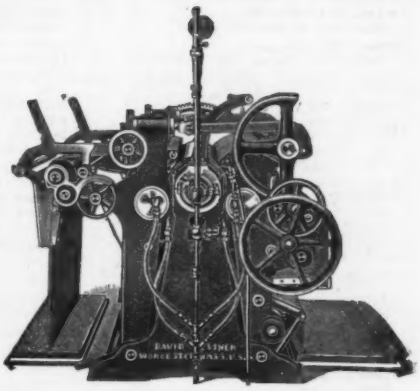




Latest Improved Cloth Finishing Machinery

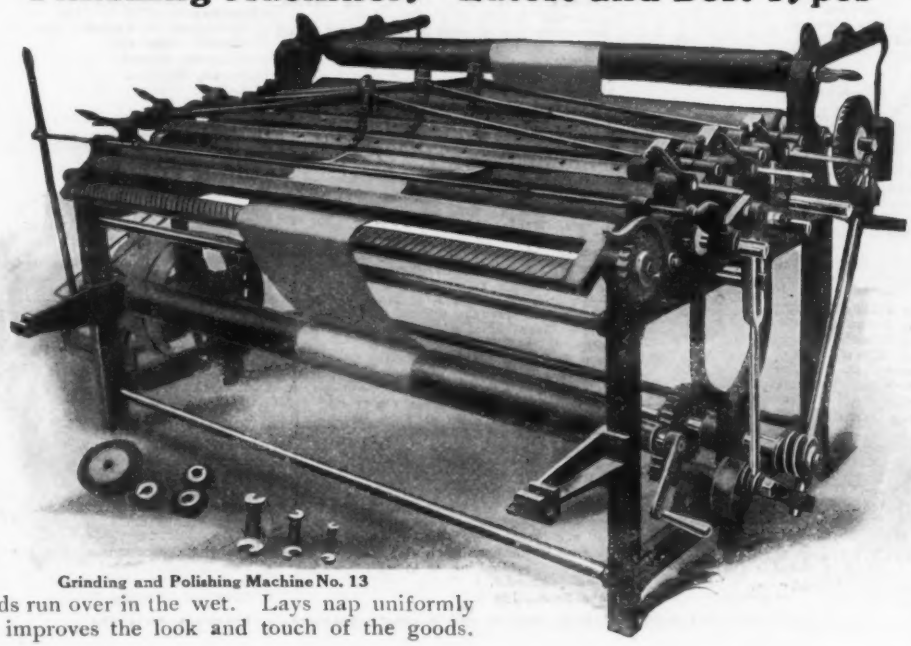
—

Napping Machines and Presses a Specialty



Schuchardt & Schutte, 90 West St., New York

Finishing Machinery—Latest and Best Types



Grinding and Polishing Machine No. 13

Goods run over in the wet. Lays nap uniformly and improves the look and touch of the goods.

Machinists' Tools.
Whiton, The D. E., Co.

Mails.
Walder, J.

Marking Pots.
Bradley, A. J.

Measuring and Folding Machines.
Curtis & Marble Machine Co.
Elliott & Hall.

Mechanical Draft.
American Blower Co.
Buffalo Forge Co.
Sturtevant, B. F., Co.

Mechanical Draughtsmen.
Sturtevant, B. F., Co.
Cameron Machine Co.

Mechanical Engineers.
American Blower Co.
Buffalo Forge Co.
Dodge Mfg. Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Mechanical Stokers.
Murphy Iron Works.

Mercerizers.
Globe Dye Works Co.
Home Bleach & Dye Works.
Lorimer, Wm. H., Sons Co.

Mercerizing Machinery.
Butterworth, H. W., & Sons.
Klauder-Weldon Dyeing Machine Co.
Schwartz, L. H. A., & Co.
Smith, Drum & Co.
Textile Finishing Machinery Co.

Metallic Fire-proof Window Frames and Sashes.
Badger, E. B., & Sons Co.

Metallic Packing.
Power Specialty Co.

Mill Architects.
—See Architects and Mill Engineers.

Mill Builders and Engineers.
Gilbreth, Frank B.
Ferguson, John W.

Mill Supplies.
American Supply Co.
Bamford & Smith.
Buckley's, Benjamin, Sons.
Burnham, E. E., & Co.
Crosby Steam Gage and Valve Co.
Easton-Burnham Co.
Eureka Fire Hose Co.
Garland Mfg. Co.
Jefferson, Ed., & Bro.
Lane, W. T., & Bro.
Leigh, Evan A.
Murphy, E. W., & Co.
N. Y. & N. J. Lubricant Co.
Philadelphia Drying Machinery Co.
Pratt, R. C.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Richardson Bros.
Schierin, Chas. A., Co.
Shaw, Victor, Ring Traveler Co.
Stephenson Mfg. Co.
Sweet & Doyle.
Thurston, A. G., & Son.
Vandegrift, Elias T.
Walworth Manufacturing Co.

Motors (Electric).
Buffalo Forge Co.
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Co.
Watson-Flagg Engineering Co.
Westinghouse Electric & Mfg. Co.

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Birch Bros., Somerville Machine Wks.
Cocker Machinery Co.
Curtis & Marble Machine Co.
Gessner, David.
Leigh, Evan A.

Noils (Silk).
Malcolm Mills Co.
Ryle, Wm., & Co.

Non-Fluid Oils.
N. Y. & N. J. Lubricant Co.

Numbering Machines.
Durbrow & Hearne Mfg. Co.

Oil Cups.
Walworth Manufacturing Co.

Oils.
Borne, Scrymser Co.
Burckhardt & Co.
Harding, Fancourt & Scull.
Murphy, E. W., & Co.
New York & New Jersey Lubricant Co.
Stephenson Mfg. Co.

Oil Stencil and Press Board Paper.
Bradley, A. J.

Overseaming Machines.
Merrow Machine Co.
Singer Sewing Machine Co.
Willcox & Gibbs Sewing Machine Co.

Packings (Metallic).
Power Specialty Co.

Paints (Wood Preserving).
Carbolineum Co.

Pantagraphs for Mill Engraving.
Johnson, C. A., & Co.

Paper.
Merwin Paper Co.
Richardson Bros.

Paper Boards.
Merwin Paper Co.

Patent Solicitors.
Crosby & Gregory.
Howson & Howson.

Perforated Metals.
Harrington & King Perforating Co.
Hopkins Machine Works.

Peroxide of Sodium.
Roessler & Hasslacher Chemical Co.

Pinking Machines.
Durbrow & Hearne Mfg. Co.
Oswego Machine Works.

Pipes and Fittings.
Scaife, W. B., & Sons.
Walworth Manufacturing Co.

Pneumatic Conveying.
—See Ventilating.

Portable Hoists.
Economy Engineering Co.

Power Transmission Machinery.
Almond, T. W., Mfg. Co.
American Mfg. Co.
American Pulley Co.
Cell Drier Machine Co.
Cresson, Geo. V., Company.
Dodge Mfg. Co.
Evans, G. Frank.
Farrel Foundry and Machine Co.
Hunter, Jas., Machine Co.
Kilburn, Lincoln & Co.
Oneida Steel Pulley Co.
Philadelphia Drying Machinery Co.
Reeves Pulley Co.
Saginaw Manufacturing Co.
Schofield, Wm., Co.
Sellers, William, & Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

Preparatory Machinery (Cotton).
Howard & Bullough Am. Machine Co.
Kitson Machine Co.
Leigh, Evan A.
Riley, C. E., Company.
Saco & Pettee Machine Shops.

Presses.
Automatic Machine Works.
Boomer & Boschert Press Co.
Butterworth, H. W., & Sons Co.
Curtis & Marble Machine Co.
Gessner, David.
Hart, Charles.
Hoffman, U. S., Co.
Minnich Machine Works.
Phila. Drying Machinery Co.
Spence & Rideout.
Sullivan Machinery Co.
Textile Finishing Machinery Co.
Woonsocket Machine & Press Co.

Press Boards.
Case Bros., Inc.

Press Papers.
Merwin Paper Co.
Philadelphia Drying Mchy. Co.
Richardson Brothers (Importers and Dealers).

Pressure Regulators.
Crosby Steam Gage & Valve Co.
Walworth Mfg. Co.

Pulley Covering.
Warren Company.

Pulleys.
—See Power Transmission Machinery.

Pumps.
Buffalo Steam Pump Co.
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.
Lawrence Pump & Engine Co.
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

Pump Governors.
Crosby Steam Gage & Valve Co.
Dean Bros. Steam Pump Works.
Walworth Mfg. Co.

Purifying & Filtration Plants.
Dodge Mfg. Co.
Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.

Quillers.
Foster Machine Co.
Payne, G. W., & Co.
Universal Winding Co.

Rag Pickers.
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Address Exceptional Bargain, care Textile World Record, Boston, Mass.

Situations Wanted.

The following advertisements are a portion of those of superintendents and overseers, of whom full particulars are on file at this office. Manufactu ers who may be in need of such men may address them in care of Textile World Record, Boston, or state their requirements directly, and the addresses of suitable men will be furnished without charge.

Mr. C. T. Donievy, a practical mill overseer and superintendent, who has a wide acquaintance with mill men, gives special attention to this department. He would be pleased to hear from any of his friends who may be interested. Address Textile World Record, 144 Congress St., Boston, Mass.

COTTON SUPERINTENDENTS.

Superintendent of a Small Mill, or assistant superintendent in a large mill; worked on fine yarns, dyed, combed and carded; print cloths, and coarse yarns; absorbent and non-absorbent cotton; familiar with all modern makes of carding and spinning machinery, also Draper looms; will not go West, South, or Canada; 33 years of age, married; good reference. 4258, Textile World Record, Boston, Mass.

Cotton Superintendent; worked on all classes of goods from 4 to 40, also ducks and drills; familiar with Fales & Jenks, Howard & Bullough, Saco & Fettee, Lowell & Whitin makes of machinery; 30 years of age, married; good reference. 4285, Textile World Record, Boston, Mass.

Superintendent; worked on all kinds of cotton goods, grey, colored, plain, fancy and duck; will not go to Canada; 51 years of age, married; good reference. 4281, Textile World Record, Boston, Mass.

Superintendent of silk or cotton mill that manufactures worsted, silk plushes, terry stripes, light and heavy weight mohair pile figure upholstery plushes. Understands Jacquard and Clipper looms. Good reference. 49 years of age, married. 4668, Textile World Record, Boston, Mass.

SUPERINTENDENTS AND DESIGNERS.

Designer, Designer and Asst. Supt. or supt. in a small or medium mill; worked on woolens, dress goods, suitings, overcoatings, men's wear, of all kinds, and worsteds; will not go West, or South; 40 years of age, married; good reference. 4272, Textile World Record, Boston, Mass.

Assistant Superintendent or designer in a cotton mill; 34 years of age, American, married; worked on denims, tickings, linings, dress goods, shirtings, cottonades, outings and plaids; familiar with up-to-date machinery used in different departments in a mill; will not go West or Canada; good reference. 4591, Textile World Record, Boston, Mass.

Designer or assistant superintendent; worked on cotton warp flannel coverts, plain and fancy cotton warp, and all wool dress goods; first class references. 3244, Textile World Record, Boston, Mass.

Designer or superintendent; ginghams, crepe, jacquards, cycle tires, filter cloth, vesting cloth, etc.; good recommendations; middle aged man, English, married. 3169, Textile World Record, Boston, Mass.

Designer; worked on all kinds of woolen goods; 35 years of age, married; good reference. 4664, Textile World Record, Boston, Mass.

Designer in Worsted or woolen mill; worked on woolen and worsted goods of all kinds; good reference; will go any place for a position; 26 years of age, single, German. 4601, Textile World Record, Boston, Mass.

Designer on Jacquard Work; 36 years of age, married; worked on brocades, fancy stripes, silk, worsted and cotton goods; could take a position at once; will not go West, South or Canada. 4535, Textile World Record, Boston, Mass.

Designer or Assistant Designer; worked on fancy worsteds, mohair and alpaca linings; 31 years of age, single; good reference. 4644, Textile World Record, Boston, Mass.

DESIGNERS.

An Experienced Designer wants position in a cotton mill making fancies, gingham or white goods; Jacquards a specialty; a graduate of textile school; educated in this country and abroad. Address A. C. X., care Textile World Record, Boston, Mass.

Assistant Designer; worked on cotton and woolen goods; has a practical knowledge of what a loom can do; 40 years of age, married; good reference. 4278, Textile World Record, Boston, Mass.

Designer on any class of dress goods, waistings, mantle cloths, fine shirtings, etc. 3203, Textile World Record, Boston, Mass.

Designer or Assistant Designer; worked on fine fancy worsted goods, all grades; 26 years of age, single; good reference. 4634, Textile World Record, Boston, Mass.

WOOLEN SUPERINTENDENTS.

Assistant Superintendent or assistant designer; worked on cotton worsteds piece dyes, satinets, unions and cassimeres; familiar with the Johnson & Bassett mules, Knowles looms, Lombard cards and Hunter's washer and fulling mills; 23 years of age; good reference. 4271, Textile World Record, Boston, Mass.

Manager, Superintendent, Mill Expert, Stuyler, machinery or yarn salesman. Worked on worsted men's wear, fancy worsteds, piece dyes, dress goods and cotton manipulated goods. Prefers a position in Pennsylvania, New York, New Jersey, or the West. Good reference. 26 years of age, married. 4659, Textile World Record, Boston, Mass.

Superintendent, Assistant Superintendent or overseer of dressing, spooling and twisting. Worked on woolens, worsteds and cotton worsteds. Familiar with all makes of machinery. Good reference. 32 years of age, married. 4636, Textile World Record, Boston, Mass.

Assistant Superintendent and assistant designer; position wanted by a man 27 years of age, German; has worked on fancy cassimeres, overcoatings and dress goods; is familiar with Crompton & Knowles looms; good references. 3681, Textile World Record, Boston, Mass.

Agent or Superintendent of a woolen or worsted mill. Worked on all classes of worsted and woolen goods; can furnish first class reference. 50 years of age, widower. 4681, Textile World Record, Boston, Mass.

Superintendent; worked on fancy worsteds and woolens, plain and fancy serges, piece dyes, mercerized and resist colored piece dyes, in fact all classes of men's wear; familiar with all kinds of machinery used in the weaving of the above goods; will not go to New Hampshire, Vermont, Pennsylvania, New York, New Jersey, West, South or Canada; 46 years of age, married, English; can speak German fluently; good reference. 4172, Textile World Record, Boston, Mass.

Superintendent or Assistant Superintendent of a woolen or knitting mill. Has manufactured woolen goods, blankets, flannels, shirtings, hosiery and yarns. Familiar with Crompton & Knowles looms, D. & F. carding and spinning machinery and Branson knitters. Will not go to Maine, New Hampshire, Vermont or Canada. 32 years of age, married. Good reference. 4686, Textile World Record, Boston, Mass.

KNITTERS.

POSITION WANTED

as superintendent of a mill making Cotton Hosiery by a man with 25 years' experience.

Is thoroughly practical and understands the business in all of its branches. Address "Mill Manager," care of Textile World Record, Boston, Mass.

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Have had 25 years practical experience as Fixer, Foreman and Supt. of the manufacture of Hosiery. Would like to buy a working interest in a successful business. Have had some experience on the dyeing of Hosiery. Address Practical, Textile World Record, Boston, Mass.

Position Wanted. Boss Knitter, Latchneedle Machines, married man of 30 of good habits, temperate and industrious. Familiar with all makes machines. Good references. Address L. N. M. care "Textile Record," Boston, Mass.

Overseer of Knitting or knitting machine fixer, underwear only; worked on ladies' knit underwear, all kinds; familiar with the Nye & Tredick, Wildman, Ruth, Champion, Scott & Williams makes of machinery; will not go West, South or Canada; good reference; 23 years of age, single. 4267, Textile World Record, Boston, Mass.

Overseer of Knitting; worked on fleece lined, balbriggan, mercerized, cotton and fancy worsteds, wool and merino nets, heavy and light weight ribbed goods, also porous knit goods; understands the spring and latch needle machines; 31 years of age; married; good reference. 3881, Textile World Record, Boston, Mass.

Superintendent of a Small Underwear Mill, overseer of finishing or latch knitting; worked on circular knit goods; familiar with knitting, Nye & Tredick, Wildman, Stafford & Holt, finishing, Singer, Wheeler & Wilson, Merrow, Union Special and National machines; 22 years of age, single; good reference. 4263, Textile World Record, Boston, Mass.

Boss Knitter; worked on ribbed underwear, gloves, mittens and leggins; familiar with the Lamb, Nye & Tredick, Wildman, Scott & Williams and Champion machines; married; good reference. 4288, Textile World Record, Boston, Mass.

Superintendent or boss knitter; 30 years of age, married; worked on men's plain and plaited fancy hose, ladies' plain and lace and misses' ribbed hosiery; familiar with the Geo. D. Mayo, Acme, Paxton & O'Neil, Standard footers; McMichael and Wildman, Brinton ribbers and different makes of welters and loopers; good reference. 4549 Textile World Record, Boston, Mass.

Superintendent of Hosiery Mill; understands knitting and finishing all grades cotton seamless hosiery; familiar with Standard knitters, also ribbers, loopers, etc.; have had over 25 years of experience; excellent handler of help; good reference; at present employed; 50 years of age, married. 4140, Textile World Record, Boston, Mass.

Superintendent, boss knitter or fixer; worked on all classes of ladies', misses', half hose; plain, fancy and lace from 84 to 220 needle; cotton, wool, lisle, worsted, mercerized, silk and merino; familiar with Scott & Williams, Jenks, Standard, Mayo, Branson, Hemphill, Boss, Brinton, Hepworth & Beattie loopers; Murphy, International, Union Special, seamers and edgers; National and Lamb sewing machines; 30 years of age, single; good reference. 4153, Textile World Record, Boston, Mass.

Assistant Superintendent or overseer of knitting in a hosiery mill. Worked on hosiery made from wool, shoddy and cotton mixes from 64 to 140 needle work. Familiar with Branson, Geo. D. Mayo, Hepworth loopers and Branson ribbers. 30 years of age, married. Good reference. 4631, Textile World Record, Boston, Mass.

Superintendent of Knitting Mill; position wanted by a man 26 years of age, married, American; is experienced on men's overshirts, balbriggan ribbed goods, fleece and novelties, and is familiar with all kinds of knitting machinery; good references. 3637, Textile World Record, Boston, Mass.

KNITTERS.

Manager or Superintendent of a knitting mill; 40 years of age, American; has worked on high grade underwear of all kinds; is a practical mechanic; understands the manufacturing in all branches; familiar with all makes of latch needle and sewing machines, bleaching and dyeing; good references. 4538, Textile World Record, Boston, Mass.

Superintendent of Knitting, or overseer of large knitting or seaming room; worked on nearly all kinds of knit goods; familiar with Crane's Twist Drill, Tompkins, Nye & Tredick, and several kinds of sewing machines used in a knitting mill; 40 years of age, married; good references; has had 25 years of constant experience in the knitting business. 4178, Textile World Record, Boston, Mass.

Superintendent or Overseer of full fashioned knitting; familiar with full fashioned underwear and hosiery and experienced on Ludwig, Shubert, Selzer, Richter, Cotton, Boesneck, Textile Machine Works, Riddier, Blackburn, Attenbury's, Moses Mellor's Machinery; prefers a position in the West; good reference. 4584, Textile World Record, Boston, Mass.

Manager or Superintendent of a hosiery or underwear mill; will be open for a position about March 1st; understands the manufacture of seamless cutting hosiery, ladies', men's and children's underwear; has had 20 years of experience in knitting mills and can refer any parties interested to manufacturers whom he has worked for. 4529, Textile World Record, Boston, Mass.

Superintendent of an underwear or hosiery mill; 31 years of age; worked on ladies' shaped ribbed and men's and children's ribbed underwear; also men's, women's and children's hosiery; familiar with the Nye & Tredick, Stafford & Holt, Brinton, Scott & Williams, Union Special and Merrow machines; good reference. 4534, Textile World Record, Boston, Mass.

Fixer in a Hosiery Mill. Worked on Mayo, Acme, Wildman ribbers and loopers and ladies', gents' and infants' cotton, merino and worsted hosiery. 22 years of age, single. Good reference. 4653. Textile World Record, Boston, Mass.

Overseer or assistant superintendent of hosiery knitting; have worked on all grades of work from coarse wool to the finest mercerized cotton; familiar with Standard, Acme, Mayo, Hemphill, Scott & Williams and Brinton makes of machines; 35 years of age, married; good reference. 4155, Textile World Record, Boston, Mass.

CARDERS.

Overseer of Carding; worked on wool and cotton mixtures, straight wool, cotton and shoddy, and short stock; familiar with Davis & Furber, Smith & Furbush cards; will not go South or Canada; 32 years of age, married; good reference. 4294, Textile World Record, Boston, Mass.

Overseer of Carding; worked on all sizes of yarn, from 3/4 to 8 run, woolen, cotton and shoddy mixes, in fact all kinds of yarn; familiar with all makes of American cards, with the exception of the Boulette condenser; will not go to N. Y., N. J., West, South or Canada; 34 years of age, married; good reference. 4291, Textile World Record, Boston, Mass.

Overseer of Carding, picking or combing; worked on prints, fine hosiery yarns, has made rovings for yarn from Nos. 3 to 85; familiar with all makes of carding and combing machinery; will not go to Pa., N. J., West, South or Canada; 33 years of age, married; good reference. 4289, Textile World Record, Boston, Mass.

Comber Man or second hand of card room; worked on all grades of Peelers, Sea Island and Egyptians; familiar with the French, English and American makes of machinery; 26 years of age, married; good reference. 4268, Textile World Record, Boston, Mass.

Overseer of Cotton Carding. Worked on sheetings and hosiery yarns. Familiar with all makes of carding machinery. 30 years of age, married. Good reference. 4682, Textile World Record, Boston, Mass.

COTTON WEAVERS.

Overseer of Weaving; worked on linen, cotton, silk, plain and fancy goods, lenos, ducks, drills, rubber goods and lappetts; understands designing; familiar with the pick and pick looms, jacquards, box and plain looms; also worked on 2 to 25 harness work; will not go to Pa., N. Y., N. J., West, South or Canada; 38 years of age, married; good reference. 4269, Textile World Record, Boston, Mass.

Overseer of Weaving in a small mill or a good second hand position; worked on twills, dobbies, pillow tubing, brocades, quilts, towels, shirtings and plain suitings; familiar with the Crompton, Knowles, Lewiston, Lowell, Mason, Whitin, Colvin and Draper machines; 29 years of age, married; good reference. 4262, Textile World Record, Boston, Mass.

Overseer of Weaving in a ribbon, tape or webbing mill; a man of 15 years experience, now with a large mill; A1 mechanic, and has had a large experience on all kinds of narrow fabric looms; steady habits; good record; prefers N. E. States, but would go to N. Y. or Pa. if place was reliable; 42 years of age, married. 4283, Textile World Record, Boston, Mass.

Overseer of Weaving or designer; lawns, sheetings, twills, sateens, quilts, bedford cords, lappets; a young man, unmarried; good experience and first class recommendation. 3068, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving; position wanted by a man 39 years of age, American, married; worked on all kinds of cotton goods, plain and fancy, on English, Colvin, Mason, Whitin and Draper looms; could take a position at two weeks' notice; first class recommendations. 3735, Textile World Record, Boston, Mass.

Overseer of Weaving; worked on sheetings, twills, sateens and fancies; wants not less than $18 per week. 3157, Textile World Record, Boston, Mass.

Overseer of Weaving; Englishman, 33 years of age, married; worked on fine lawns, sheetings, sateens and fancies, coarse drills, twills, bicycle cloth, automobile cloth for tires; familiar with Whitin, Crompton, Knowles, Mason, Kilburn & Lincoln and Lowell machines. 3073, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving; position wanted by a man, 27 years of age, American, married, with experience on prints, cambrics, sateens, drills, corded goods, etc.; worked on Draper, Whitin, Lowell, Mason and Colvin looms; prefers a position in the East. 3430, Textile World Record, Boston, Mass.

Overseer of Weaving or assistant superintendent; position wanted by a man 48 years of age, married; has worked on all kinds of fancy woolen and worsted goods, wool and cotton and wool and shoddy mixes, and fancy cotton dress goods; can also design; is familiar with Crompton & Knowles looms, Gilbert looms and dobby heads, and Whitin plain and fancy looms; has good references. 3501, Textile World Record, Boston, Mass.

Promotion for Textile Workers

The most practical, surest, and quickest way in the world for ambitious textile workers to secure promotion is offered by an institution through whose assistance thousands of men have already advanced to better positions and larger salaries. They have done this in their own homes, in their spare time, and at an insignificant cost. We will cheerfully explain, free of charge, how we can adapt our plan to **YOUR** personal needs and income if you will write us today, stating the position you would like to secure.

INTERNATIONAL CORRESPONDENCE SCHOOLS, Box 832, Scranton, Pa.

WOOLEN WEAVERS.

Overseer of Weaving; worked on fancy dress goods, plain and fancy cassimeres, plain and fancy overcoatings, cloakings and bed blankets; familiar with Davis & Furber, Crompton and Knowles looms; will not go to Pa., N. Y., N. J., West, South or Canada; 39 years of age, married; good reference. 4290, Textile World Record, Boston, Mass.

Overseer of Weaving; worked on fancy and cotton worsteds, resists, worsted and wool cassimeres, cheviots, thibets, cotton mixes, shoddy mixes, woolen yarns, etc.; familiar with Crompton and Knowles looms; will not go to N. J., West, South or Canada; 34 years of age, single; good reference. 4286, Textile World Record, Boston, Mass.

Boss Weaver and Designer, assistant designer or assistant superintendent; worked on worsted dress goods, meltons, kerseys, satinets, beavers, cotton warp goods, flannels; familiar with Crompton & Knowles, Furbush, Davis & Furber machines; will not go to Canada; 40 years of age, married; good reference. 4256, Textile World Record, Boston, Mass.

Overseer of Weaving; worked on woolen and worsted goods of all kinds; familiar with Knowles, Crompton and Thayer looms; will not go to Pa., N. Y., N. J., West, South or Canada; 28 years of age, single; good reference. 4287, Textile World Record, Boston, Mass.

Overseer of Weaving; worked on wool and cotton blankets; prefers the asbestos business; familiar with the Crompton & Knowles looms; 40 years of age, married; good reference. 4276, Textile World Record, Boston, Mass.

Overseer of Weaving; position wanted by a man, American, 45 years of age and married; has worked on dress goods, cloakings, flannels, meltons and unions; is familiar with Crompton & Knowles and Stafford looms; good references. 3494, Textile World Record, Boston, Mass.

Overseer of Woolen or Worsted Weaving. Worked on worsted, cotton worsted, woolens of all kinds; Crompton & Knowles looms, understands winders and spoolers; good reference, 39 years of age, married. 4105 Textile World Record, Boston, Mass.

Woolen Boss Weaver; worked on worsteds, woolens of all kinds, also dress goods; American, 38 years of age married. 3231, Textile World Record, Boston, Mass.

Overseer of Weaving in a small mill or loom fixer. Worked on wool and worsteds. Familiar with Knowles looms. 28 years of age, single. Good reference. 4684, Textile World Record, Boston, Mass.

Overseer of Woolen Weaving or second hand in a good mill. Worked on cassimeres, meltons, kerseys, piece dyes, plain and fancy goods. Understands Knowles looms. 26 years of age, single. Good reference. 4612, Textile World Record, Boston, Mass.

Overseer of Woolen Weaving, second hand or loom fixer; worked on worsteds, cassimeres, ladies' dress goods, blankets and cheviots; familiar with the Crompton & Knowles looms; has two workers in the family; could take a position at once and will go any place; 46 years of age, married; good reference. 4620, Textile World Record, Boston, Mass.

Overseer of Woolen Weaving; worked on fancy and cotton worsteds, dress goods and woolens of all kinds; familiar with C. & K. looms; 32 years of age, married; good reference. 4637, Textile World Record, Boston, Mass.

Overseer of Weaving or second hand in a woolen mill; married man, 34 years of age, American; worked on broadcloths, sackings, covert cloths, suitings, kerseys, beavers, rain cloths and bed blankets; familiar with Crompton & Knowles and Davis & Furber looms; prefers a position in New England; good reference. 4554, Textile World Record, Boston, Mass.

Overseer of Woolen Weaving; American, 37 years of age; accustomed to fancy worsteds and woolens, dress goods, etc.; held last position six years; prefers the East. 3397, Textile World Record, Boston, Mass.

SPINNERS.

Overseer of Spinning; worked on all classes of yarns; familiar with Johnson & Bassett makes of machinery; will not go to Mass., R. I., Conn., Me., N. H., Vt., South or Canada; 35 years of age, married; good reference. 4284, Textile World Record, Boston, Mass.

Overseer of Ring Spinning; worked on sheetings, shirtings, yarns for knitting and weaving, combed and carded peelers, solid colors, mixtures, dyed Egyptians and all kinds of cotton hosiery yarns, single and plies; familiar with Lowell, Saco & Pettee and Whitin machines; 27 years of age, married; good reference. 4259, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning; worked on cheviots, cassimeres, outings, kerseys, thibets, venetians, coverts, cotton mixes, fancy overcoats, suitings and all kinds of double twist yarns; familiar with D. & F., J. & B. mules, twisting and spooling frames; 33 years of age; good reference. 4261, Textile World Record, Boston, Mass.

Overseer of Spinning; worked on cheviots, cassimeres, outings, kerseys, thibets, venetians, coverts, cotton mixes, fancy overcoats and suitings; familiar with Davis & Furber and Johnson & Bassett mules; will not go West, South or Canada; 38 years of age, married; good reference. 4297, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning; worked on all grades of goods; familiar with J. & B., D. & F., Smith, Molton and Bancroft makes of machinery; 40 years of age, single; good reference. 4265, Textile World Record, Boston, Mass.

Second Hand of Spinning; worked on coarse and fine yarn, also hosiery yarns; familiar with Fales, Jenks and Whitin machines; will not go West, South or Canada; 24 years of age; good reference. 4298, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning or mule fixer; worked on all kinds of goods; familiar with Davis & Furber and Johnson & Bassett mules; will not go West, South or Canada; 30 years of age, married; good reference. 4277, Textile World Record, Boston, Mass.

FINISHERS.

Overseer of Finishing; worked on broad cloths, kerseys, overcoatings, meltons, cassimeres, coverts and cotton mixes; familiar with all kinds of machinery; 40 years of age, married; good reference. 4296, Textile World Record, Boston, Mass.

Overseer of Woolen or Worsted Finishing; worked on all classes of woolen goods; familiar with all makes of finishing machinery; will not go West, South or Canada; 26 years of age; good reference. 4273, Textile World Record, Boston, Mass.

Overseer of Finishing; worked on all classes of woolens and worsteds, face finish goods a specialty; familiar with all makes of finishing machinery; 48 years of age, married; good reference. 4275, Textile World Record, Boston, Mass.

Overseer of Finishing or assistant superintendent; worked on piece dyes, fancy and resist worsteds; familiar with Crompton & Knowles looms, and all kinds of finishing and dyeing machinery; will not go West, South or Canada; 40 years of age, married; good reference. 4292, Textile World Record, Boston, Mass.

Overseer of Finishing in a small mill or second hand; worked on fine cassimeres, overcoatings, dress goods, meltons and worsteds; familiar with the Hunter, Parks & Woolson and Curtis & Marble shears and the Woonsocket press; will not go further South than Kentucky, North than Michigan, West than Kansas and East than Ohio; 37 years of age, married; good reference. 4264, Textile World Record, Boston, Mass.

MISCELLANEOUS.

Braider Foreman or Assistant

Young man 24 years of age would like to hear from first-class dress trimmings house; have worked on all kinds of braids, plain and fancy work, and all kinds of machines. Radium, Stripe, Jacquard, and American machines; make own samples. Good reference. Address Braider Foreman, care Textile World Record, Boston, Mass.

TO TEXTILE MACHINE BUILDERS

A man with a record of successful inventions and improvements on textile machinery would like connection where ideas are required. Thorough training and experience Good connection with opportunity for results wanted rather than large salary. Age 33. Address "Textile Expert," care Textile World Record, Boston, Mass.

Master Mechanic, American, 39 years of age. Technical training, 20 years of experience in print works and Mills Steam plant, electrical apparatus, and hold first-class "Mass." engineer's license. Ten years with one of the largest print works in New England, at present Master Mechanic in large Cotton Mill. Wants change for educational reasons. Best of references as to character and ability. Address Educational, care Textile World Record, Boston, Massachusetts.

Investment in Hosiery Mill; a young man would like to invest about $1,500 in the hosiery manufacturing; experienced 15 years. Address W. L. J., care Textile World Record, Boston, Mass.

Agency Wanted; well trained technical man with commercial experience, hard worker, having office in Manchester, England, desires representation of first class firm for England and the Continent. Address S. C. M., care Textile World Record, Boston, Mass.

Carpenter, Foreman of Mill Repairs and mill work, or millwright; will not go South or Canada; 48 years of age, married; good reference. 4295, Textile World Record, Boston, Mass.

Overseer of Burling and Mending, or clothing house examiner; worked on fine and medium worsteds, cassimeres, kerseys, cheviots, dress goods and coverts; will not go to Me., N. H., Vt., West or Canada; 49 years of age, married; good reference. 4282, Textile World Record, Boston, Mass.

Overseer of Folding and Packing; worked on fine and fancy goods; 36 years of age, married; good reference. 4274, Textile World Record, Boston, Mass.

Loom Fixer; worked on men's wear, cotton worsteds and ladies' dress goods; familiar with Crompton & Knowles looms; will not go to Me., N. H., Vt., West, South or Canada; 34 years of age; good reference. 4280, Textile World Record, Boston, Boston, Mass.

Machinist and Repair Man; worked on everything made on Leighton round machines; can do any kind of repairing, but wants Leighton machines only; will not go to Me., N. H. or Vt., New York City, Brooklyn, or Jersey City; 38 years of age, single; good reference. 4266, Textile World Record, Boston, Mass.

Overseer of Bleaching, starching or finishing; 26 years of age single; worked on drills, twills, sateens, cords, sheetings, shirtings, ducks, towels, mulls, cambrics and muslins, in fact all kinds of cotton goods; familiar with all kinds of machinery used in handling these goods; good reference. 4513, Textile World Record, Boston, Mass.

Superintendent or Assistant Superintendent, boss weaver or designer in a silk mill. Has worked on silk ties, dress goods, fancy vestings and mohair linings. Is familiar with Crompton & Knowles looms. Would prefer New York or New Jersey states, but would accept a good position anywhere. Good reference. 4518, Textile World Record, Boston, Mass.

DYERS.

BOSS DYER

(Saxon) will be open for engagement April 1, '09. Unexcelled in the art of Bleaching and Dyeing of Cotton or Mercerized Hosiery, Knit Goods and Skein Yarns; absolutely ungreenable Oxydized Black, Sulphur and Developed Blacks; also Basic Colors, Direct Colors, Sulphur and Developed Colors. Have held responsible positions with leading firms uninterruptedly ever since coming to the U. S. in 1894. Formerly Boss Dyer (for 3 years) with Louis Hernisdoif at Chemnitz. Pennsylvania or other Eastern State preferred. Will not go South. Age 44 and married. Gilt edge references.

Address "Silk Finish" care Textile World Record.

Overseer of Dyeing; worked on all kinds of woolens and worsteds; will not go West or Canada; 43 years of age, married; good reference. 4270, Textile World Record, Boston, Mass.

Overseer of Dyeing or Second Hand; worked on cotton and wool raw stock, dress goods, persian lambs, astrachans and worsted yarns; familiar with Klauder-Weldon makes of machinery; will not go South; 24 years of age, married; good reference. 4260, Textile World Record, Boston, Mass.

Overseer of Dyeing; worked on all kinds of woolen goods, both in piece, yarn and raw stock; will not go West, South or Canada; 38 years of age, married; good reference. 4257, Textile World Record, Boston, Mass.

DYERS.

Overseer of Dyeing; worked on cotton, woolen and worsted yarns, piece dyes, raw stock, unions, resist dyes, underwear and hosiery; will not go to Pa., N. J., West, South or Canada; 32 years of age, married; good reference. 4299, Textile World Record, Boston, Mass.

Second Hand in a cotton mill dye house; worked on cotton yarn in skein and chain form, also raw stock; familiar with ordinary warp dyers, Klauder & Weldon and the Vacuum raw stock dyeing machine; will not go to Pa., N. Y., N. J., West, South or Canada; 22 years of age; good reference. 4300, Textile World Record, Boston, Mass.

Overseer of Dyeing; worked on wool, shoddy, cotton yarn, silk and silk noils, also piece; 43 years of age, married; good reference. 4293, Textile World Record, Boston, Mass.

Overseer of Dyeing; has worked mostly on piece dyeing, especially union goods; 40 years of age, married; good reference. 4279, Textile World Record, Boston, Mass.

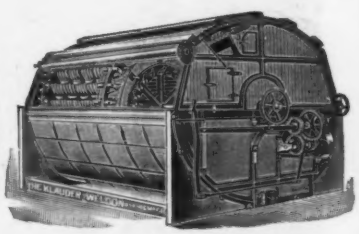
Second Hand in the dye house or finished percher. Worked on beavers, kerseys, broadcloths, thibets, flannels, cotton mixes, cheviots and cassimeres. Would prefer a position in the N. E States. 25 years of age. Good reference. 4648, Textile World Record, Boston, Mass.

Boss Dyer, scourer and bleacher in a knitting mill; worked on all grades of knitted underwear; first class references; will not go West or to Canada; 41 years old, married. 3004, Textile World Record, Boston, Mass.

Overseer of Dyeing. 32 years of age, married; worked on woolen, worsted, unions, cotton worsteds, raw stock, cross dyes, cotton worsted yarns; good reference. 4097 Textile World Record, Boston, Mass.

RAW WOOL AND COTTON MACHINE.

MACHINES
sold on
2 MONTHS' TRIAL
YOU
TAKE
NO
RISK

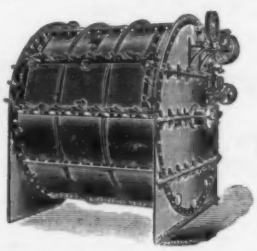


SKEIN AND SLUBBING MACHINE.

THE KLAUDER-WELDON DYEING MACHINE COMPANY

P. O. Box K, AMSTERDAM, N. Y.

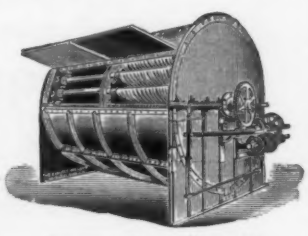
Machines for Dyeing, Bleaching and Scouring Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.



SULPHUR HOSIERY MACHINE.

Special Machines for Sulphur Colors

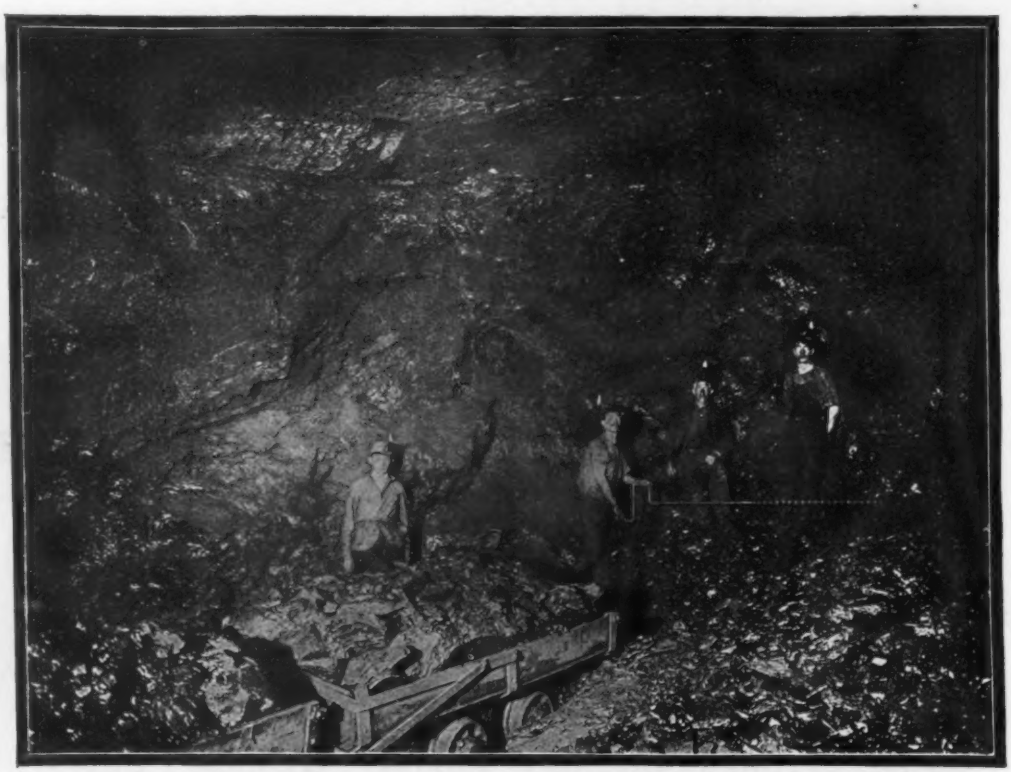
WILL EARN THEIR COST IN
LABOR ALONE
IN FROM
6 TO 12 MONTHS
ACCORDING TO CAPACITY



SULPHUR SKEIN MACHINE.

Average selling price about $2.00 per ton

A clear profit of over $1.00 per ton for every ton mined. Photograph shows thickness of vein, ease of working, and excellent quality.



"Battle Creek" seam of coal which underlays 7000 acres of coal land in Tennessee owned by this Company.

The Cross Creek 6% Gold Bonds carry with them a bonus of preferred stock, giving a good income return on the bonds and probable very handsome profit on the stock.

Write for particulars.

Cross Creek Coal Company,

1006 Mutual Life Bldg., Buffalo, N. Y.

Cross Creek 6% First Mortgage Sinking Fund Gold Bonds

This bond issue (**$250,000**) is a first lien on **7000** acres of coal lands and all improvements. Every ton of coal mined pays into the sinking fund **10c,** so that each year a certain portion of the indebtedness is paid off. The interest, payable semi-annually, at the office of the Hamilton Trust and Sav. Bank, Chattanooga, Tennessee, is **6%**, and the preferred stock accompanying the bonds is entitled to **6%** of the earnings, ahead of the common stock.

As showing the development of the coal business in the United States, the United States Geological report shows that in 1814 the total production was **22** tons; in 1906 the tonnage was **414,157,278** tons and in 1907, **480,363,424** tons, or an increase in tonnage in one year of over **66,000,000,** or more than the total production in 1878.

Less than $50,000 of these bonds remain to be sold. Early application is suggested

Cross Creek Coal Company,

1006 Mutual Life Bldg., Buffalo, N. Y.

NEW SHADES

The new shades are not produced without effort. Even then you will often have much trouble with water-marked or blotched effects. Is this trouble due to the dye? Sometimes, but such cases are rare. Time and time again it is due to the cloth not being properly cleansed.

Wyandotte Textile Soda

will assist you greatly if not overcome the trouble altogether. It is mild in its action and represents the combination of detergent properties equalled by no other article. Thus it is enabled to so thoroughly remove the grease, dirt and other impurities from the wool and cloth that the dye works evenly and uniformly.

None Genuine except with card bearing this Trade Mark

In Every Package.

There is no secret, no magic in its workings. It simply prepares the cloth and wool so that the dye has nothing to do but what it is intended it should do. This is why you have no blotches, no streaks and why the colors show up bright and clear.

Why not ask your supply man to send you some Wyandotte Textile Soda. Further information always furnished gladly.

The J. B. Ford Co., Wyandotte, Mich.

Sole Manufacturers

THIS SODA HAS BEEN AWARDED THE HIGHEST PRIZE WHEREVER EXHIBITED.

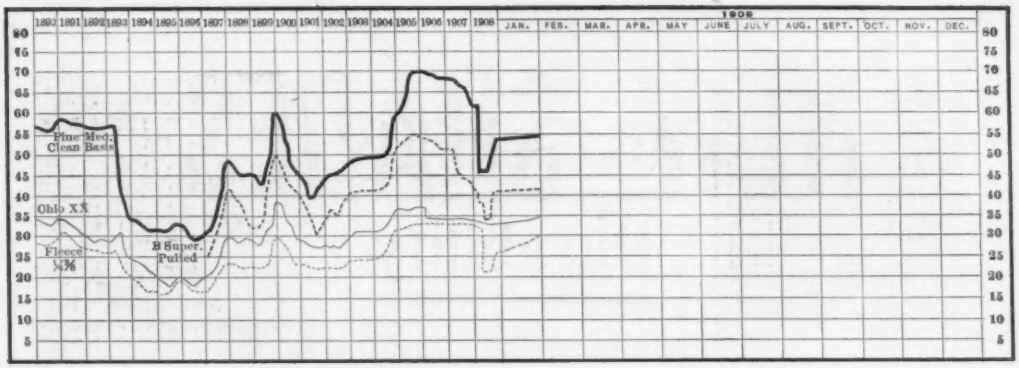


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

The Wool Market.

The wool market has been firmer, and there has been a resumption of the tendency toward a boom, which was so evident immediately after the election last November. Close observers believe that were it not for the prospect of tariff revision with the wool schedule an object of attack, there would now be in progress the greatest boom in wool values in the history of the trade. Knowing that such an event would be an evil because of the inevitable reaction they look upon the agitation of the tariff as a benefit as far as the wool trade is concerned, because it has steadied the market and made buyers conservative. Nevertheless there has been extensive contracting in the West for wool on the sheep's back, and Americans have been free buyers at London and in Australia at the advance. There has been little doing in American wools in Eastern markets because of the limited supply, the increase in business having been confined principally to foreign wool. While tariff revision is exerting an influence on the market, many disregard it on the ground that the new bill will not go into effect early enough to affect the wool purchased at the present time. The situation is highly speculative and is developing the possibility of losses for the enthusiastic dealers.

Chas. Weaver, overseer of the carding department at the J. L. & T. D. Peck Mfg. Company, lower mill, Pittsfield, Mass., was found dead at his boarding place on Peck's Road. Death was due to heart trouble. He was 65 years of age and came from West Warren, Mass., a short time ago to take charge of the carding department at this mill.

Col. Francis Jewett Parker, formerly treasurer of the Monadnock Mills, Claremont, N. H., died recently at the age of 83 years.

Facts and Gossip.

Illinois, Chicago. The fire in the quarters of the Progress Knitting Mills, 312-314 Fifth Ave., destroyed the stock on hand, but no machinery is operated in this city. The manufacturing plant is located in New York. Until repairs have been completed the business will be located temporarily at 282 Fifth Ave., Chicago.

*Louisiana, Baton Rouge. We are advised that the promoters of the proposed knitting mill for this city are not in readiness at this time to give out any information concerning their plans.

Michigan, Grand Rapids. Stockholders of the Globe Knitting Works of this place, and of the Thornapple Knitting Co., of Middleville, have voted to merge the two companies. The following officers have been elected: E. A. Clements, president; Christian Bertsch, vice president, and H. M. Liesveld, secretary and treasurer. The new concern will be known as the Globe Knitting Works and they will have capital stock of $400,000.

Minnesota, Austin. The Rushford Knitting Mills of Rushford may remove to this place. A representative of the company has been here negotiating with business men for favorable inducements.

Minnesota, St. Paul. A small knitting plant is being operated under the style of Mrs. M. Sorensen's Knitting Works, at 563 Rice St. They manufacture stockings, underwear, sweaters and fancy knit goods, buying all yarns.

*New Jersey, Salem. James Taylor, second-hand machinery dealer of Philadelphia, purchased the Salem Knitting Mills, including property, machinery and all equipment as it stands in the mill, for $6,000. Mr. Taylor is quoted as saying that the plant will soon be in operation again.

New York, Kinderhook. Reports that the Kinderhook Knitting Co. has sold its plant to New York parties are incorrect, as the company advises that the plant has not been sold and is running full time with the full complement of help. Sweaters and fancy knit goods are manufactured.

Accessibility
Durability

All kinds of Bleaching, Dyeing and Finishing machinery made to meet the demands for machines that will do all their work well and economically.

Every machine we build is well built, of such material that repairs or any other leakage in operation are reduced to a dissappearing negative. Some machines we've built ran for years with no cost for repairs or new parts.

If you are thinking of building Bleaching or Finishing machinery of any kind we may be able to save you considerable expense and time, because we have many patterns, some of which you may be able to use with little or no change.

We can make the castings for you at, perhaps, less cost than if you had the patterns and castings made elsewhere.

THE TAYLOR & FENN Co
MACHINISTS & FOUNDERS
HARTFORD, CONN. U.S.A.

Alexander & Garsed, Southern Agents, Charlotte, N. C.

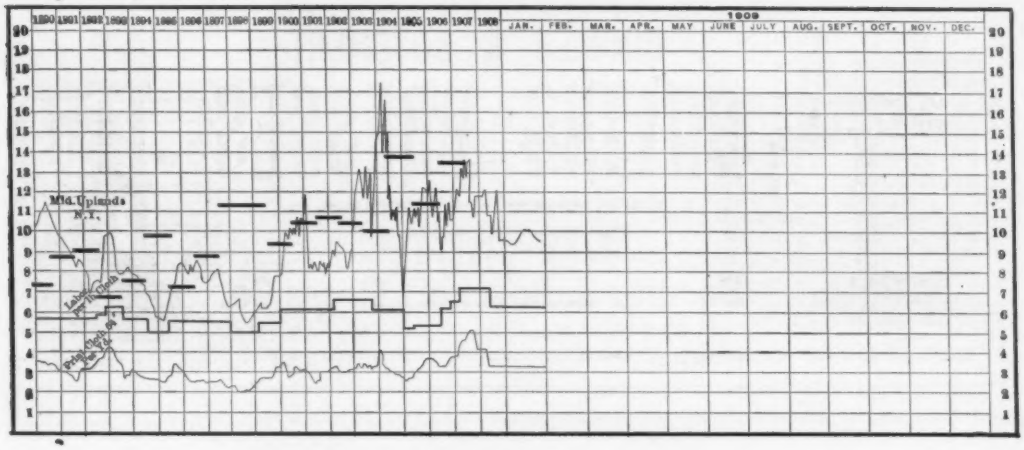


CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

The Cotton Market.

A steady advance in the price of cotton with a bumper crop coming on the market expresses the world-wide trade sentiment better than could be done in any other way. There is an interesting undercurrent of confidence that the cotton trade is to have a revival of activity. As a result both foreign and domestic mills have taken cotton freely leaving the visible stocks of moderate proportions in spite of the heavy receipts. As estimated by the Chronicle the movement into sight from Sept. 1 to Jan. 22 for a series of years is as follows:

Year.	Bales.
1908-09, Jan. 22	9,556,941
1907-08, Jan. 23	7,790,751
1906-07, Jan. 25	9,373,610
1905-06, Jan. 26	7,706,040
1904-05, Jan. 27	8,683,252

The visible supply on Jan. 22, 1909, is estimated by the same authority at 5,593,524 bales, as compared with 4,917,486 bales on same date in 1908, 5,552,270 bales in 1907, and 5,375,809 bales in 1906.

Mills Shutting Down.

Michigan, Williamston. The stock in process at the Williamston Knitting Co. is being run out, and the plant will shortly be offered for sale. They manufactured mittens, gloves and fancy knit goods on 20 flat knitting machines, buying worsted, mercerized cotton and woolen yarns.

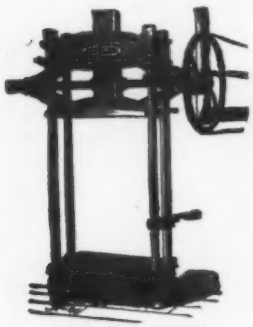
FAILURES AND SUSPENSIONS.

Massachusetts, Boston. Arthur A. Brigham, textile machinery agent at 17 Milk St., has filed a petition of voluntary bankruptcy. His liabilities amount to $27,130, of which $33 is secured. There are no assets. There are three creditors of $5.000 each. Most of the debts are outside the textile trade. There is one large English claim.

Massachusetts, Boston. Arnold B. Sanford, the largest bond and stockholder of the Kennebec Spinning Company, and an endorser of their paper to a large amount, has found himself embarrassed through his connection with that concern and upon advice of his attorneys and some of his creditors has filed an individual petition in bankruptcy. The scheduled assets in securities and stock foots up about $100,000 and his liabilities, many of which are contingent, to about $75,000. We understand the American Cotton Exchange, of which Mr. Sanford is president, is not involved in this matter and indeed report marked improvement in business of late. They are selling agents for the Lockmore Mills and have recently taken on the New England agency for the new Majestic Mfg. Company, which manufactures combed Sea Island yarn of fine numbers.

New Hampshire, Ashland. Robert H. Hart, proprietor of the Squam Lake Woolen Mills, has made an assignment to F. M. Beckford, an attorney of Laconia. No estimate of the assets and liabilities has been filed. The Squam Lake Woolen Mills have equipment of six sets and 26 looms which were operated on broadcloths. The mill has been shut down for some time.

MANUFACTURERS OF
WEIMAR BROS. Cotton Mercerized Tapes,
SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES.
Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.



KNUCKLE JOINT.

BOOMER & BOSCHERT

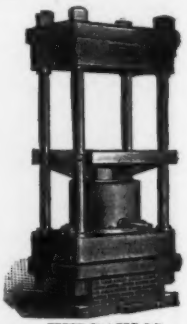
BALING PRESSES

ARE THE STANDARD

Hydraulic or Knuckle Joint
Any Size .. Any Power

Boomer & Boschert Press Co.

338 West Water S., SYRACUSE, N. Y.
Southern Agent, A. H. WASHBURN, Charlotte, N. C.



HYDRAULIC.

The Harness is

made for Particular Weavers.

Every loom harness which we turn out is subjected to a most critical and rigid inspection during each one of the processes through which it goes. It is also carefully examined when finished and every harness with twisted eyes or other imperfections is thrown out. Great care in the making and careful inspection throughout are bound to produce harnesses which are always uniform in quality and this will be found to be characteristic of our work.

G TRADE MARK

GARLAND MFG. CO.
SACO, MAINE
[Formerly Loom Picker Co., Biddeford, Maine]

For 25 YEARS We have held OUR REPUTATION as Progressive Manufacturers. Do not forget this when ordering GAGES.

ORIGINAL SINGLE BELL CHIME WHISTLE
Harmonious
Far Reaching
Pleasing.

A Truthful Gage is the only GOOD GAGE.

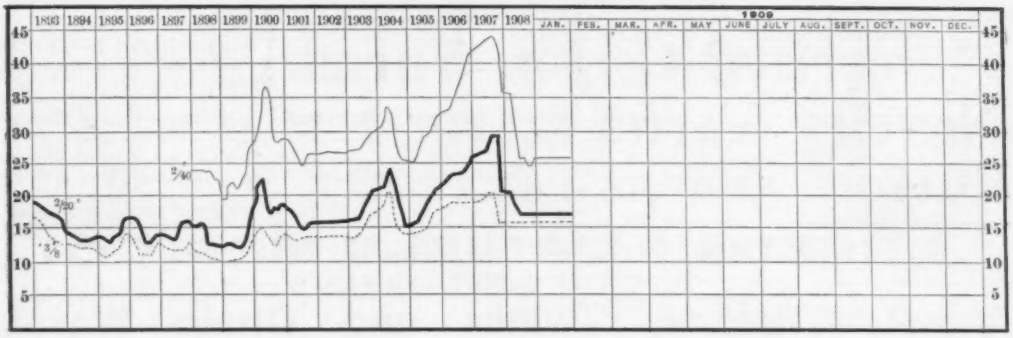
This Company manufactures, besides the above a large variety of articles used in connection with steam engines and boilers, all of which are standard quality, and may be relied upon. *Send for Catalogue.*

CROSBY STEAM GAGE & VALVE CO.

Stores: BOSTON, NEW YORK, CHICAGO, LONDON.

Office and Works: BOSTON, MASS.

Yarn Department.



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

The Cotton Yarn Market.

There has been a decided advance in cotton during the past few weeks and ordinarily we should have had a corresponding advance in cotton yarn, but on account of large stocks on hand and indifference on the part of buyers as to new purchases, there has been no advance in yarn to speak of. About the best that can be said is, that the market has hardened. If the advance in cotton is sustained, yarns will surely command higher figures in the near future. There is a fair volume of business in most lines of textile goods, but there is no boom on, so far as we can judge. Southern spinners are not very well supplied with orders, and the market conditions are, generally speaking, unsatisfactory. We quote as follows:

Eastern Cops.

6s	17
8s	17
10s	17½
14s	18½
16s	19
18s	19½
20s	20
22s	20½
24s	21
26s	21½
30s	22
34s	23
36s	25
40s	26

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler.

12s	20
14s	20½
18s	22
20s	23
24s	23½
26s	24
30s	25
36s	28
40s	29
45s	33
50s	36
55s	39
60s	44

Eastern Two-Ply Warps, Carded Peeler.

2/30s	25
2/36s	28
2/40s	29
2/45s	33
2/50s	36
2/60s	44

Egyptian Weaving Yarns.

Single Skeins Combed.

30s	35
36s	37
40s	38
45s	40
50s	45
55s	48
60s	52
70s	57

The Philadelphia Market.

7s and coarser	16
8s and 9s	16
10s	16½
12s	17
14s	17½
16s	18
18s	18½
20s	19
22s	19½
24s	20
26s	20½

THE J. R. MONTGOMERY CO.,

Windsor Locks, Conn.

MANUFACTURERS OF

Mercerized Cotton Yarns Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

Novelty Yarns Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps on Beams, Jack Spools and Tubes. In Fancy, Twist, Colors and Printed.

GREENE & DANIELS MFG. CO.,

COMBED, CARDED AND GASSED

Yarns, Threads, Twines and Chain Warps.

DYE SULPHUR BLACKS DIRECT IN COPS, CONES OR TUBES.

Colored and Bleached Yarns Furnished in any manner desired by the trade.

Pawtucket, R. I.

MONUMENT MILLS,

Manufacturers of

White, Colored, Fancy and Double Twist

COTTON WARPS

HOUSATONIC, MASS. 4s to 60s.

M. J. TOOHEY & CO., OF FALL RIVER, MASS.

Banding made from Egyptian or White Cotton Yarn as Desired.

The Other Fellows Banding.

MARYLAND WOOL AND COTTON EXCHANGE
906-908 Streeper St., Baltimore, Md.

High Grade Hosiery and Weaving Yarns all colors.

Operating Well Equipped Bleachery, Dyehouse, Spool, Cone and Twist Mill.

EDDY & STREET,

Cotton, Woolen

Yarns and Braids

Worsted, Spun Silk.

PROVIDENCE, R. I.

The Merwin Paper Company

Hartford, Conn.

Press Papers and Fender Boards

Correspondence Solicited

Mills at Rainbow, Conn. Address Inquiries to Rainbow, Conn.

30s	21½
40s	27
50s	35

Southern high grade mule yarn:—

Cones.

10s	18½
12s	19
14s	19½
16s	20¼
18s	20¾
20s and 22s	21¼-21¾
24s	22¼

Southern frame yarn, lower grades:—

6s and 8s	15½
10s	16

Eastern cones (high grade quality):—

10s	19
12s	19½
14s	20
16s	20¼
18s	20¼
20s and 22s	21¼-22½

Skein yarn (mostly Southern):—

4s and 8s soft	15½
10s and 12s	16-16½
14s to 20s	17-18
22s	18½
10/2	16½
16/2	17½
20/2	19
30/2	21
40/2	27
16/3 slack	18
12/3 slack	17½
7/6 skein	16
8/3 carpet	15½
8/3 slack	16
9/4 slack	16

Warps (Southern):—

10s to 12s	17
14s	17½
16s	18
20s to 22s	18½-19
26s	19½
14/2	18
16/2	18½

J. TOWNSEND WALKER
The Spinners Representative
All Nos. and Descriptions of Cotton Yarn Sold Direct to the Trade
ACCOUNTS SOLICITED.
P. O. Box 659 PROVIDENCE, R. I.
Banigan Building, Room 528
Telephone Connection.

C. MOORE & CO.,
Manufacturers of
TWINES, THREADS AND YARNS
Jacquard Harness Twines of all kinds on hand and made to order.
S. W. Cor. Fifth and Market Sts., Phila.

JAMES E. MITCHELL CO., COMMISSION MERCHANTS.
Cotton Yarns
AND COTTON CLOTHS.
122-124 Chestnut Street, PHILADELPHIA, PA.
73 Leonard Street, NEW YORK.
Brown Building, 185 Summer Street, BOSTON, MASS.
25 South Tryon Street, CHARLOTTE, N. C.

CATLIN & CO.,
Cotton Yarns.
345 Broadway, NEW YORK.
67 Chauncy Street, BOSTON.
128-130 Chestnut Street, PHILADELPHIA.
605 Medinah Temple, CHICAGO.

Harding, Whitman & Co.,
Dry Goods Commission Merchants,
COTTON AND WORSTED YARNS.
BOSTON. NEW YORK. PHILA.
CHICAGO. BALTIMORE. ST. LOUIS.

A. D. Salkeld & Bro.
COMMISSION MERCHANTS
DEP'T. FRED'K VIETOR & ACHELIS
COTTON YARNS
66-72 LEONARD STREET - - NEW YORK

Fred Sternberg & Co.
530 Broadway, - NEW YORK.
MERCERIZED TURKEY RED GASSED } COTTON YARNS.

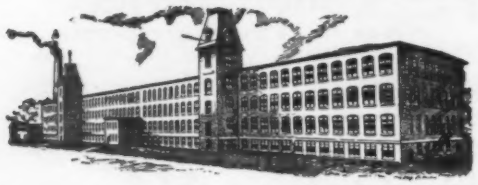
LUDWIG LITTAUER,
SUCCESSOR TO
MOELLER & LITTAUER, 109 Greene St., New York
SILK, WORSTED, WOOLEN YARNS COTTON AND MOHAIR
Polished Threads and Tinsel. Artificial or Wood Silk.
Mercerized, Turkey Red, Fine Gassed Yarns.
SILK MILL, BOONVILLE, N. Y.

High Grade Hosiery Yarn
White and Colors. All Numbers. Sewing Twines on Cones and Tubes
SPECIALTIES IN WEAVING YARN
Black and White. Double and Twist for Woolen Trade.
CANNON MILLS 53-5 Worth Street, New York
Philadelphia Office, 205-7 Chestnut St.

GRANT YARN CO.,
COMBED AND CARDED COTTON.
YARNS 40's and above. AND WARPS
FITCHBURG, MASS.

C. T. Crocker, Pres. W. F. Stiles, Treas.

ORSWELL MILLS



Fitchburg, Mass.

Capacity, 45,000 Spindles.

HIGH GRADE YARNS

From Egyptian and Peeler Cottons, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

Cotton Yarns

Jenckes Spinning Company
Pawtucket, R. I.

Carded and Combed single and twisted Yarns and Threads from Peeler, Sea Island and Egyptian Cottons, on Cops, Cones and Tubes or in Skeins and Warps. Six Cord Thread Yarns a Specialty **Bleached or in colors**

We are successfully dyeing cotton yarns on parallel tubes and cops and would be pleased to send a sample to interested parties.

Dyeing, Coneing, Twisting and Tubeing of Cotton, Woolen and Worsted Yarns.
Dyers of Cotton Warps, and Hosiery in Fast Black and Colors.

Cross-Dye Colors a Specialty.
Yarns Furnished on Dresser Spools.
Dealers in All Kinds of Yarn for the Trade.

Germania Dye Works
MAX SARFERT, Prop,
Kensington & Allegheny Aves., Philadelphia.

Ballou Yarn Co.

PROVIDENCE. R. I.

Harness and Seine Twines and other Job Gassing, Winding, etc. All Numbers

GASSED YARN SPECIALTIES

T. H. S. CONE, Direct Selling Agent
COTTON YARNS
77 Worth Street, New York, N. Y.
Representing
Norwood Mfg. Co., Norwood, N. C.
Linn Mills Co., Landis, N. C.

Century Cotton Mills

Manufacturers of

Hosiery Yarns

Nos. 10s to 30s Sell Direct
South Boston - - - Virginia

Beacon Narrow Fabric Co.

Braids & Tapes

Notre Dame St. FALL RIVER, MASS.

Authorized Capital $100,000
W. A. Dickel, Pres. and Treas.
Samuel Reid, Vice-Pres. and Sec'y.
I. B. Scovill Gen'l Mgr. and Supt.

INDUSTRIAL MILLS CO.
Jasper and Huntingdon Sts., Phila., Pa.
Manufacturers of
NARROW FABRICS
Special Attention Paid to Plain and Fancy
Spool Tapes and Stay Bindings.

F. W. MAURER & SONS CO.
MANUFACTURERS OF
Fringes, Tapes, Bindings, & Narrow Fabrics
Office and Factory: WAYNE AVE. and BRISTOL STS.
PHILADELPHIA

KROUT & FITE MANUFACTURING CO.,

Manufacturers of

Silk, Cotton and Mercerized Narrow Fabrics

SPOOL TAPES A SPECIALTY.

Telephone Connection. Office and Mill, Allegheny Ave. and Emerald St., PHILADELPHIA.

20/2	19½
24/2	20½
30/2	21½
40/2	27

Mixed colored yarns (mock twist, half colors):—

6s to 10s	18-18½
12s to 14s	19-20
16s to 18s	20½-21

Mock Egyptian, 2c. advance over white.

Egyptian, 5 to 6c. above the best quality white.

FIRES.

Maine, Skowhegan. The business section of Swokhegan has been swept by fire which destroyed the plant of the Oriental Rug Works, S. S. Morrison, proprietor. Rugs were manufactured on six narrow and one broad loom.

*Massachusetts, North Chelmsford. Fire destroyed the Brookside Worsted Mills and the George C. Moore Wool Scouring Mills. The loss is estimated at several hundred thousand dollars; fully insured. The work of clearing away the debris has been started and insurance adjusters are trying to arrive at the loss. It is generally believed plans for rebuilding will be at once started.

Massachusetts, Stoughton. The plant of Charles Stretton & Sons has been destroyed by fire starting from an explosion, the cause of which is unknown. The loss is estimated at $50,000, fully covered by insurance. Ninety latch needle, ten spring needle and ten flat knitting machines and seventy-five sewing machines were operated on children's ribbed underwear and union suits, sweaters and fancy knit goods which were bleached and finished at the plant. Thomas Stretton is superintendent and buyer.

North Carolina, Greensboro. A loss estimated at $50,000 was caused by fire in the warehouse of the Proximity Mfg. Co.

Pennsylvania, Conshohocken. A fire which started in the drying rooms of the woolen mill operated by the H. C. Jones Co. destroyed that section of the buildings and caused a loss estimated at about $20,000. They are manufacturers of cottonades and cotton worsteds, operating 4 sets and 150 looms, with a department for dyeing and finishing the product of the plant. The damage will be repaired at once.

Pennsylvania, Philadelphia. The wool warehouses of Fred Wolstenholme, 26-28 Letitia St., and Howard Boyer Wool Co., 32 South 2d St., have been damaged by fire. The loss is estimated at $100,000, fully insured.

RHOADS LEATHER BELTING

THE TANNATE SERIES

OUR tannate specialties, all of them of our own tannage, form a series hard to equal.

Tannate Round Belting for power sewing machines, wood carving machines, etc., is unequalled, as proved by the experience of many years.

Tannate Lace Leather is stronger and more lasting than rawhide or any other lace leather that we know. We make both cut and side.

Tannate Flat Belting is flexible, elastic and very tough; these qualities come from the leather. It is straight, even-balanced and permanently stretched; these qualities come from the making. But its strongest point is its long life.

Let us send samples and prices.

J. E. RHOADS & SONS

Phila., 12 N. Third St. New York, 40 Fulton St.
Chicago, 243 E. Randolph St.
Factory and Tannery, Wilmington, Del.

LINEN YARN IMPORTER.

HUGHES FAWCETT, 115 Franklin Street, NEW YORK.

Flax, Hemp and Jute Line and Tow Yarns, For Weaving Purposes.

Linen Jacquard Harness Twines, Fine Cotton Harness and Heddle Twines.

For Cotton, Silk, Woolen and Carpet Manufacturers.

Correspondence solicited. Samples promptly furnished.

DUNCAN & YOUNGS

95 Worth Street, NEW YORK

Practical Manufacturers of

YARNS, THREADS, TWINES, CORDS, ROPE

AND MILL SUPPLIES

Anything in the line you cannot get anywhere else apply to us.

William B. Charles,

Amsterdam, N. Y.

Cotton Yarns, Cotton Cloth, Silesia, Sateens,

For the Underwear Trade.

F. C. BARTON

65 Worth Street, New York

MANUFACTURER OF

"LILY" BRAND NARROW FABRICS WEB, TAPE, BINDINGS, ETC.

THE BIAS NARROW FABRIC CO.

F. C. BARTON, President

65 Worth Street, New York

Bias and Straight Cut Fabrics and Ribbons.

Embossing and Cutting Customers Own Goods a Specialty.

Pocasset Worsted Company,

Worsted Yarns.

BOSTON
100 BOYLSTON STREET
TELEPHONE 19 OXFORD

NEW YORK
100 FIFTH AVENUE
TELEPHONE CONNECTION

H. HODGSON, Pres. & Treas. FRED HODGSON, Gen. Mgr.

QUEENSBURY MILLS

Mohair, Lustre and Worsted Yarns

—Single and Two Ply—

Grey—Colors on Mixtures Worcester, Mass.

French System. Bradford System.

B. F. BOYER CO.,

MANUFACTURERS OF

WORSTED AND WOOLEN YARNS,

Office and Mill, River Ave. and Marlton St. CAMDEN, N. J.

WORSTED YARNS

RICHARD CAMPION.

SELLING AGENT FOR

Bristol Worsted Mills,
Highland Worsted Mills.

300 Chestnut Street,
PHILADELPHIA, PA.

Woolen and Merino YARNS

Eaton Rapids Woolen Mills,

EATON RAPIDS, MICH.

Worsted AND Woolen Yarns

WALTER McCOOK

BELL TELEPHONE LOMBARD 3790 576 Bourse Philadelphia

MILLER MANUFACTURING COMPANY

Manufacturers of

SOAPS for Textile Use, SIZINGS, OILS, Etc.

Write us for Prices.

666 EDDY STREET, PROVIDENCE, R. I.

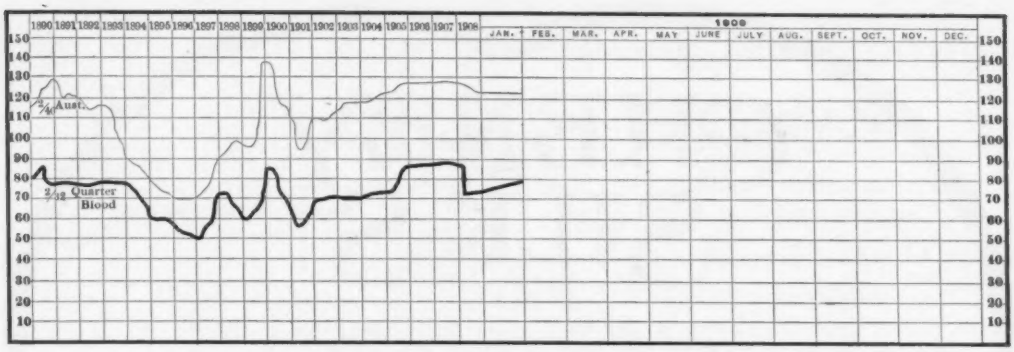


CHART SHOWING RANGES OF PRICE OF WORSTED YARNS.

The Woolen and Worsted Yarn Market.

The spinners of worsted yarns, both Bradford and French, report that the condition of trade with them is better now than it has been for the past few years back. They are still working on contracts placed before the election by manufacturers who anticipated a rise in price. The orders that are now being received are from manufacturers who were not in a position at that time to cover themselves and were compelled to go into the market and buy at the advanced rate. Yarns of all descriptions have within the past three months advanced from 10 to 12 cents per pound, and while there has been no change in the prices shown in our schedule for the month there is every indication that if the wool market remains as firm as it has for the last month or so that prices will again advance.

Spinners of French yarn report that they have as much business as they can handle with prices firm and state that in some instances they have been compelled to refuse orders at an advanced rate.

The dress goods trade is just opening up and the manufacturers are asking for quotations and deliveries on 2/36, 2/32 and down to 2/20, Bradford spun, and it is reported that some mills have placed large orders for these counts within the last month.

Men's wear manufacturers have their samples out on heavy weights with orders coming in and will be placing orders for yarns in counts around 2/24s, 22s and single 11s within the next week or ten days.

Knit goods manufacturers are now making up their samples and submitting them to the trade. The fancy knit goods and sweater manufacturers, who have had a most successful year, are now enjoying a rest. Their samples are in the hands of the jobbers and it is expected that the business for the coming season will be a heavy one. In anticipation of this rush many of the older manufacturers are increasing the capacity of their plants by putting in new machines and a number of new concerns are getting ready to start up. The orders now being placed for worsted yarns, while not large, are mostly for counts such as 3/15s and 3/18s, but it is said that when the season does open up, which will be about February 1, the spinners will have all they can do to make deliveries and supply the wants of this branch of the knitting trade. Some knitters are asking for prices on woolen yarns and it is said that the spinners of woolen yarns for this trade will have more business than they have ever had before. In many cases quite a number of spinners who have been running on commission work have gone on the road showing samples and taking orders to run on their own account.

In summing up the condition of affairs just now it might be said that there is a good healthy demand for both woolen and worsted yarns. No extraordinarily big business is being placed, but a good steady demand is being made upon the spinner for his goods, and from the looks of things there is no doubt that every one will get their share and business will be good for some time to come. We quote as follows:

BRADFORD SPUN YARN.

2/12 to 2/16 low common	62½-67½
2/26 to 2/28 common	67½-70
2/12 to 2/20 1/4 blood	75-77½
2/26 to 2/28 1/4 blood	77½-80
2/32 to 1/4 blood	80-82½
2/20 3/8 blood	85-87½
2/26 3/8 blood	87½-90
2/30 3/8 blood	90-92½
2/36 3/8 blood	92½-95
2/40 1/2 blood	1.07½-1.10
2/40 delaine	1.12-1.15
2/50 delaine	1.17½-1.22½
2/40 Australian	1.22½-1.25
2/50 Australian	1.35

CHENEY SILKS

All kinds of
Spun Silk Yarns in the Gray or Dyed. Organzines, Trams or Singles in the Gray or Dyed, on Cones, Warped or in the Hank.

16 Ounces to the Pound Pure Silk—Fast Colors Warranted

Special Yarns made to order for all sorts of Silks or Silk Mixture Goods, also special silks for electrical uses, insulation purposes, etc. Knitting Silks, Ribbons and Piece Goods for Trimming Knit Goods.

Dress Silks, Foulards, Sashes, Satins, Pongees, Plushes, Linings, Decorative Silks, Velvets, etc.

Manufacturers' orders promptly executed.

CHENEY BROS., Silk Manufacturers
South MANCHESTER, Conn.
Salesrooms
NEW YORK, 477 Broome St. PHILADELPHIA, 929 Chestnut St.
CHICAGO, Heyworth Bldg. SAN FRANCISCO, Chronicle Bldg.
BOSTON, 79 Chauncy St.

WILLIAM RYLE & CO.,

Foreign and Domestic

Spun Silk Yarns and Noils.

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.

54 Howard St., cor. Mercer St., NEW YORK.

SAUQUOIT SILK MFG. CO.,

INSULATING AND BRAIDING SILKS.

ORGANZINE, TRAM & HOSIERY SILKS.

Fast Dye Organzines for Woolen Manufacturers a Specialty.

Mills: Bethlehem, Pa., Phila., Pa., Scranton, Pa. New York Representatives, Wm. Ryle & Co., 54 Howard St.—Phila. Office, 4015 Clarissa St., Nicetown.—Chicago Office, 188-190 Market St.—Boston Office, 78 Chauncy St.

Crochet Lace Edgings

Spun Silk, Splicing Yarn, Mercerized Yarns, Cotton Warps, Sewing Threads, Tapes, Braids, Domets, Cambrics, Silesias.

Write for Prices and Samples.

George W. Chapin, 229-231 Church St., Philadelphia.

2/60 Australian	1.50
2/24 lustre	85
2/28 lustre	87½
2/30 and 3/32 lustre	90-92½
2/36 lustre	97½-1.00
1/24 worsted and 80s single cotton for raincloths	1.00
1/24 worsted and 120 single cotton for raincloths	1.10

FRENCH SPUN YARN.

1/20 1/4 blood	77½-80
1/20 high 1/4	82½-85
1/20 3/8 blood	92½-95
1/20 1/2 blood	95-97
1/30 high 1/4 blood	85-87½
1/30 3/8 blood	87½-90
1/30 1/2 blood	97½-1.00
1/40 1/2 blood	1.02½-1.05
1/50 delaine	1.20
1/40 Australian	1.25
1/50 Australian	1.30
1/60 Australian	1.40
1/70 Australian	1.45

The Rag and Shoddy Market.

There has been very little doing in this market and that confined to mills that needed stock for piecing out special grades. The strength of the wool market has as yet failed to affect the market for wool substitutes. With the light weight season and tariff revision approaching there is little prospect of any improvement in the demand for shoddy. Cotton and wool wastes are dull and in rather small supply. With so much carded woolen machinery idle there has been a reduced consumption of waste and shoddy. It is reported that noils are in somewhat larger supply, but prices are firmly maintained.

SHODDIES AND EXTRACTS.

White yarn, best all wool	47-50
White knit, all wool, best fine	36-41
White knit, No. 2	32-38
Light yarn, extra fine	33-36
New pure indigo blue	30-32

Merino.

Fine light, all wool	29-31
Medium light, all wool	17-19½
Fine black, all wool	27-29
Fine dark, all wool, best grade	21-23
Medium dark, all wool, No. 2	17-18
Red knit stock, strictly all wool	22-24
Red flannel, all wool	25-27
Dark blue for hosiery, strictly all wool, No. 1	22-25
Dark blue for hosiery, not all wool, No. 2	17-19

WOOLEN RAGS.

Fine merchant tailors	10-12
Choice light colors	16-18
Browns	11-15
Blacks	10-13½

Knitting and Weaving YARNS.

Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment.

EDWARD S. HYDE,
226 CHESTNUT STREET,
Philadelphia, Pa.

EDWIN F. SCHOFIELD
Cotton Waste
IMPORT and EXPORT
45 S. 3rd St. Philadelphia

William B. Charles,
Amsterdam, N. Y., U. S. A.
Cotton and Wool Wastes
COTTON YARNS

Contracts made with Cotton and Woolen Mills for Yearly Waste Production. Correspondence solicited. Shepperson's Code, 1878. Cable Address "Charles."

C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice-Pres. and Sec'y.
Established 1860—Incorporated 1893.
THE S. BLAISDELL, JR., CO.,
COTTON, EGYPTIAN PERUVIAN
American Long Staple a Specialty. Shipments direct to mill from Egypt, Peru and all American Southern Points.
CHICOPEE, MASS.
Cotton Waste Purchased on Yearly Contract from Mills.

Testing of Yarns.
Count-Twist-Strength-Moisture-Chemical Test
When in doubt apply to
NEW YORK SILK CONDITIONING WORKS
138-140-142 Spring St., New York

Fine blues, plain	11-12½
Fine dark	9-13½
Medium dark	6½-10½
Worsteds.	
Blue	15-17½
Black	19½-20
Serges.	
Black	10½-12½
Blue	11-13
Flannels.	
New scarlet	18-20
New blue	17-19½
Cloakings	4½-6½
SOFTS AND KNIT STOCK.	
Soft woolens, best	5-6
Old white flannels	12-13
Old red flannels	12-13
Old blue flannels	5½-6½
Old plaids	7-9
White stockings	20-22
White hood stock	20-23
Clear hoods	9½-12

Dyestuffs and Chemicals.

Acids.

Acetic, 100 lbs	2.50-3.00
Citric, domestic	50-52
Oxalic	8-9
Sulphuric, 66°, 100 lbs.	1.25-1.80
Muriatic, 18°	1.12-1.80
Tartaric crystals	2.65-3.00

Miscellaneous Chemicals and Dyestuffs.

Acetate of lime, gray, 100 lbs.	2.52-2.90
Alum, lump	1.73-2.49
ground	1.82-2.25
powdered	2.80-3.35
Aqua ammonia, 26°	
Ammoniac, sal., gray	
Borax, bbls.	4-7½
Brimstone, crude, ton	27-51
Copperas	61-80
Cream tartar, crystals	20-25
Fuller's earth, powdered, ton	20-22
Glauber's salt	51-65
Potash, chlorate, crystals	10-12½
powdered	12-13
carbonate	6½-7½
Soda, bicarbonate	1.60½-1.76
Soda, caustic, domestic, 60 per cent.	1.72-1.91
Sal., American	72-86
Vitriol, blue	5-6
Acetate of soda	4-6
Acid, picric, best crystals	25-50
tannic, commercial	30-40
Albumen, egg	61-71
blood	24-32
Alizarine, red	19
Aniline, oil	11-12
salt crystals	13½
Bichromate of potash, American	9-11
Bichromate of soda	8½-9½
Bisulphite of soda	3-4
Cutch, mat	5-8
Dextrine, imported potato	6-10½
Divi-divi, ton	46½-69

NON-FLUID OILS

No Scoring, Cutting or Spattering with Non-Fluid Oils

You need no oil cellars or tight shields with Non-Fluid Oils. They spread only on the rubbing surfaces, and not on the outside to catch dirt or make mill stains. You also save what goes to waste with ordinary thin oils, for Non-Fluid Oils need be fed only as fast as consumed in *actual useful work*. **Non-Fluid Oils** are always under perfect control and their purity is further protection against dry journals and hot boxes. Ask for a free sample, if you are interested in the most, cleanest and best lubrication.

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N. Y. & N. J. Lubricant Company

Dept. H

15 Church Street and 165 Broadway, New York

You Save Enough Insurance to Pay for the Equipment.

So it costs you NOTHING to have the AMERICAN WATCHMAN'S CLOCK. Fully approved by all insurance companies. We equip factories with Fire Alarms, Signals, etc., also Employee's Time Recorders, and Telephone Systems. Electric Time System consists of Master Regulator in office with secondary electric clocks throughout the mill, insuring accurate time. Send for particulars.

Pettes & Randall Co., 150 Nassau St., New York

Established 1796

Special Shaped Carbon Black Diamond. **Points for Tiering** Rag and CornHusk, Cotton. Calender Rolls, Hard Rubber Fibre, etc. Manufactured by

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Lowell Crayons Meet the requirements of any cotton, woolen or worsted mill.

May we send samples? 15 colors and white.

Lowell Crayon Co., Original Manufacturers **Lowell, Mass.**

Trade Mark on every box.

Ament's **IRON GLUE**

for covering Worsted and Cotton Mill Rolls, Pulleys, Etc. Holds the covering until it is entirely worn out. Saves eight times its cost in leather alone. Write for sample demonstration.

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The HOME INSURANCE COMPANY NEW YORK

Organized 1853. MAIN OFFICES, 56 CEDAR ST.

Cash Capital, $3,000,000.

ASSETS January 1, 1909	$24,856,499
LIABILITIES (Including Capital)	14,173,678
RESERVE AS A CONFLAGRATION SURPLUS	800,000
NET SURPLUS OVER ALL LIABILITIES AND RESERVES	9,882,821
SURPLUS AS REGARDS POLICY-HOLDERS	13.682,821
Losses Paid Since Organization Over	$115,000,000

IDEMNITY
For loss of
Profits
Commissions
Use & Occupancy
on acceptable
Textile Plants
at the
Minimum Rate

IS prepared to entertain liberal lines on Sprinkler-Equipped and Modern Improved risks generally, having a special department for the consideration of such business.

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CLARENCE A. LUDLUM, Asst. Sec'y.
AREUNAH M. BURTIS, Secretary.
CHARLES L. TYNER, Secretary.
HENRY J. FERRIS, Asst. Secretary.

Facts and Gossip.

Michigan, Montague. It is understood that the capacity of the Empire Knitting Mills will be increased within a short time. Sweaters, sweater coats, and cardigan jackets are manufactured on twelve knitting and five sewing machines. Harry Alschuler has formed a partnership with Joseph Kaufman, formerly sole proprietor of the company, and will have charge of the office at 221 Fifth Ave., Chicago. Mr. Kaufman is in charge of the plant, and attends to the buying.

*Minnesota, Minneapolis. The directors of the Northwestern Knitting Co. have authorized to be issued for the present $500,000 new stock of the company. They do not expect at the present time to build a new mill, but they do contemplate a material increase in their activities during the next few years.

*New Jersey, Dover. Hugo Huettig, well known to the full-fashioned knitting trade as being at one time connected with the German-American Hosiery Co., in Philadelphia, and later manager for David Richter, manufacturer of full-fashion machines, with an office in the Bourse Bldg., Philadelphia, has recently been elected a director and also secretary of the new company formed by Paul Guenther under the name of Paul Guenther, Inc., manufacturers of men's and women's full-fashioned hosiery. Mr. Huettig, in addition to his office as secretary of the company, will also superintend the operations of the plant.

*New Jersey, Paterson. The new mill being erected for the Paterson Knitting Works is 25 by 100 ft. J. Schaerer has been elected president and treasurer of this company, and also attends to the buying.

Pennsylvania, Philadelphia. Fire destroyed John Ballantyne & Sons' hosiery plant, located at 276 Ashmead St., Germantown. The loss is estimated at $75,000. Seamless cotton and lisle hosiery was manufactured on 346 knitting machines. Alexander Ballantyne is buyer.

Pennsylvania, Philadelphia. An exploding lamp, used for heating purposes, in the factory of Oehrle Bros. & Co., 423-425 N. 3d St., was the cause of a fire which completely destroyed the plant, entailing a loss of about $100,000. They manufactured upholstery trimmings. It is the intention of the concern to start up again as soon as suitable quarters can be secured and the necessary machinery installed.

Tennessee, Rockford. The Rockford Cotton Mills have been destroyed by fire with loss estimated at $25,000. 2,400 ring spindles were operated on heavy cotton yarns and twine. Ernest Koella is treasurer and buyer.

Utah, Brigham. J. Anderson, proprietor of the Brigham City Knitting Factory, is contemplating the addition of new machinery. Underwear is manufactured.

Wisconsin, Marinette. A severe loss was caused by fire in the Marinette Knitting Mills. The damage is estimated at $15,000 to $20,000, fully covered by insurance.

The WM. H. LORIMER'S SONS CO.,

Manufacturers of

MERCERIZED YARNS

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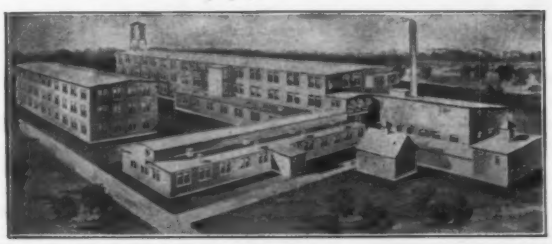
PETER B. MCMANUS, Pres. and Treas. EDWARD J. MCCAUGHEY, Secy. and Mgr. JOHN MCMANUS, Vice-Pres.

HOME BLEACH AND DYE WORKS, Inc.



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Cotton Yarns

in skein, and long and short

CHAIN WARPS

Fast Colors a Specialty.

Daily Capacity 30,000 lbs.

Fast Colors and Black for Worsted Trade.

Office and Works, Pawtucket, R. I.

Established 1881.

GLOBE DYE WORKS CO.,

Successors to R. Greenwood & Bault

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YARNS BLEACHED AND DYED (delivered on cones)

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ESPECIALLY FOR THE

KNIT GOODS TRADE

CONE WINDING FOR THE TRADE

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Turkish Towels Made Up to Suit the Trade and Shipped to Any Point

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Office, 2557 Orianna Street — Correspondence Solicited

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is the Simplest and Cheapest means for giving Goods Fullness, Body and Weight.

is guaranteed harmless to fibre and color, does not coat the yarn, but closely unites with it, eliminates dusting off during the napping process. Does not change goods while in stock.

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New Brunswick, N. J.

All business transactions treated confidentially.

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New York Office, Silk Exchange Bldg., Cor. Broadway and Broome Sts.

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Specialty in the Treating of Silk and Wool Fabrics, such as Eoliennes, Crepes and Henriettas and all high class wool tissues like Batiste, Voiles and Foules. Also, Cotton and Wool Goods, Mohair Linings and Lastings.

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Cleans Wool, Floors, Anything.

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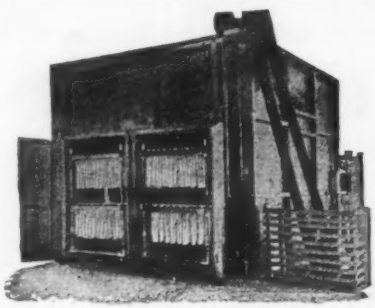
Also Dyers of Genuine Turkey Reds.

We are Dyers of all kinds of YARNS AND Cotton Warps

We are sure we can give you better work and better service than you can get elsewhere. A trial will convince.

T. BROPHY'S SONS, Jasper St., above Clearfield St., - PHILADELPHIA, PA.



Bailey's Hot Air System of Yarn Drying has no equal

where large capacity is required. Leaves the yarn in fine condition for winding and weaving, makes little waste, is simple and very effective. My *cold air system* is unequalled where output is not *the* all important thing.

Write for particulars.

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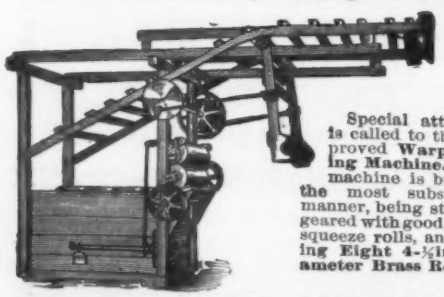
EVERYTHING IN SIZINGS, Etc. SAMPLES MATCHED. HIGH GRADE GOODS.

The Reliance Warp Dyeing Machine.



Special attention is called to this improved **Warp Dyeing Machine.** This machine is built in the most substantial manner, being strongly geared with good, heavy squeeze rolls, and having **Eight 4-½in. Diameter Brass Rolls.**

This machine, with our Improved Plater-down has met with marvelous success, and parties desiring machinery of this class, can make no mistake on ours For further particulars and prices, address

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Drying and Sulphur House Poles of Natural Round Water Grown Cedar for Cotton, Wool, etc. Special Hardwoods in Standard No. 1 and "Selects" without knots, grades, for Silk Dyeing. Manufactured by, prices and all information from

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Fast Colors for Wool and Cotton.
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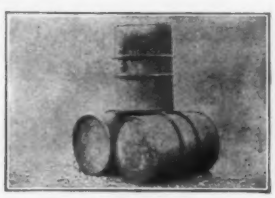

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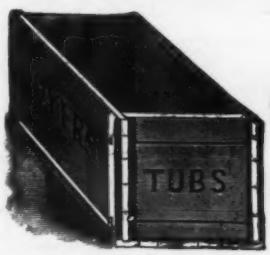

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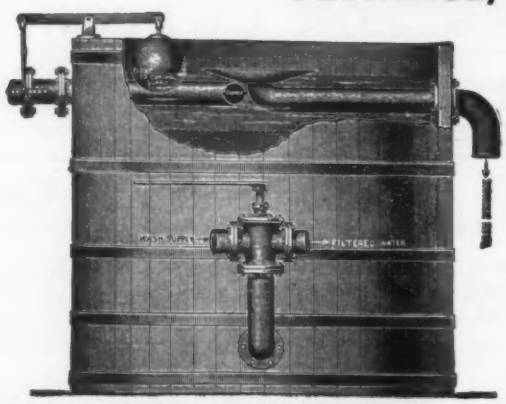

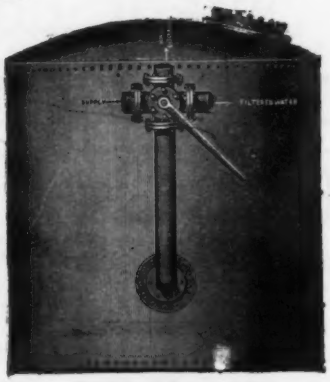

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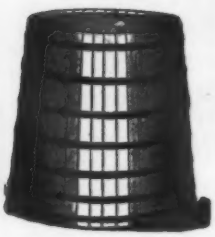

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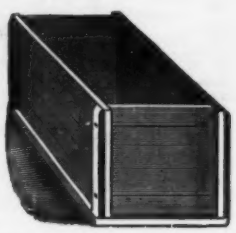

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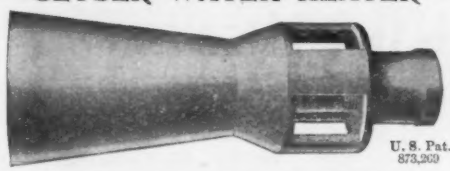

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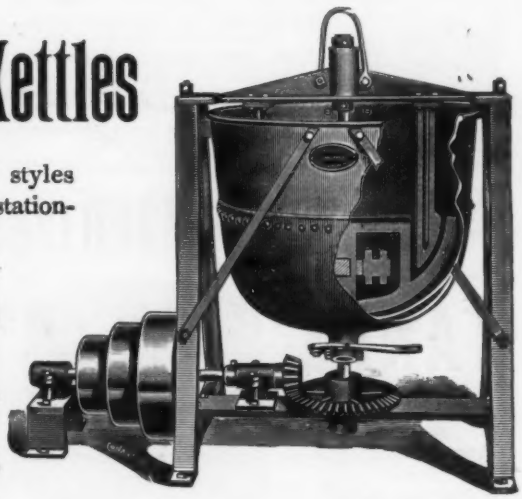

This cut represents one of our many styles of steam mixing kettles, made with stationary and removable stirrers.

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Patentee and Sole Manufacturer of
THE PNEUMATIC CONVEYOR

For the handling of wool and cotton stock rags, excelsior, jute and all kinds of fibrous material, wet or dry. Also spool elevators steam heating and ventilating, and mill work generally. Blower and fan work a specialty. This conveyor is patented. Beware of infringement

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OF ALL KINDS

Factories at
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IF

you size or finish your goods,

IF

you strip your goods,

DIASTAFOR

can show

ADVANTAGES

from standpoint of economy as well as quality of fabric.

The American Diamalt Co.
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WOOL EXCHANGE
260 W. Broadway

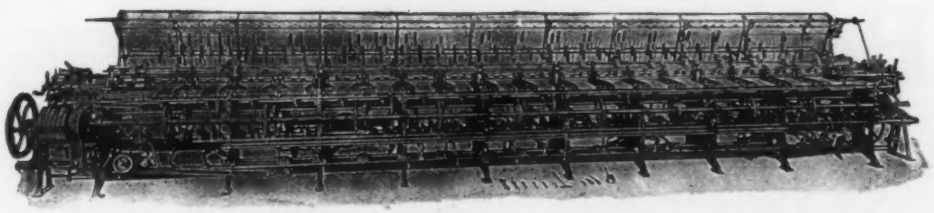
MAX NYDEGGER NEW YORK

PHILADELPHIA OFFICE 435 BOURSE BLDG.

All Special Machines for Any Article That Is Knit

Full Fashioned Hosiery Machines

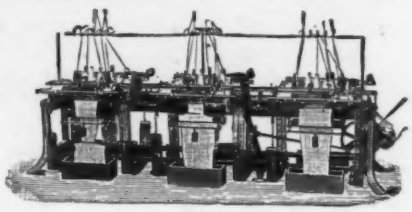
System **G. Hilscher, Chemnitz, Saxony**



18 Section "COTTON HILSCHER" Machine for Full Fashioned Hosiery, Silk, Cotton, Wool, etc.
Gold Medal, Paris, 1900 Numerous Patents Covering Special Improvements

GROSSER Flat Knitting Machines

For HAND Power or FULLY AUTOMATIC Power MACHINES. Most productive and best machines for Sweaters, Jackets, Blouses, Wool Hosiery, Gloves, Mittens, Sporting Goods in Plain, Fancy and Jacquard Work, Shaker Articles, etc. Large stock on hand. Power Machines to be seen in operation.

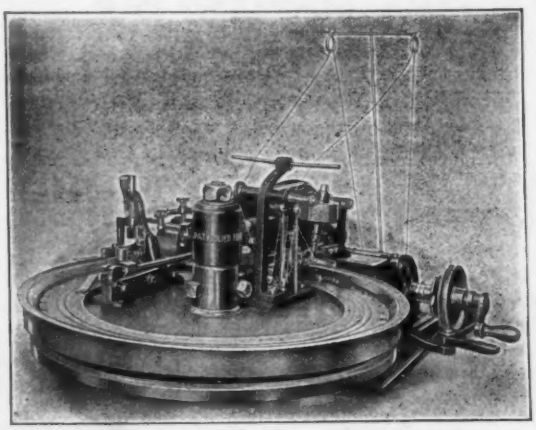


CIRCULAR FRENCH FRAMES

C. Terrot Söhne, Cannstatt, Würt, famous builders of the best Circular Frame for Finest Underwear, Fleece Linings, Gloves, Special á-jour (openwork) Fabrics, etc.

RASHEL MACHINES [Double Rip Warp Knitting Machines.]

For Fancy Goods in largest variety, Shawls, Capes, Caps, Borders, Fringes, Lace Work, etc., in silk, wool cotton.



The LOOPER THAT LOOPS!

Two thread lock stitch machine with reliable trimmer and raveller producing *indestructible, flat elastic* seam.
No Hosiery or Underwear plant up to date without this machine.

DIAMOND OVERSEAMERS

for all classes of selvege goods, Full Fashioned Hosiery, Underwear, etc.

FINISHING MACHINES for Knit Goods of all styles.

WINDERS for finest yarns.

Information, Samples and Specifications at Your Disposition

FRIEDBERGER-AARON MFG. CO.

LEADING MANUFACTURERS

Braids and Edgings

FOR TRIMMING

Ladies' Ribbed Underwear

OUR MOTTO: Correct Goods
Right Prices
Prompt Deliveries

Mills: Germantown, Philadelphia

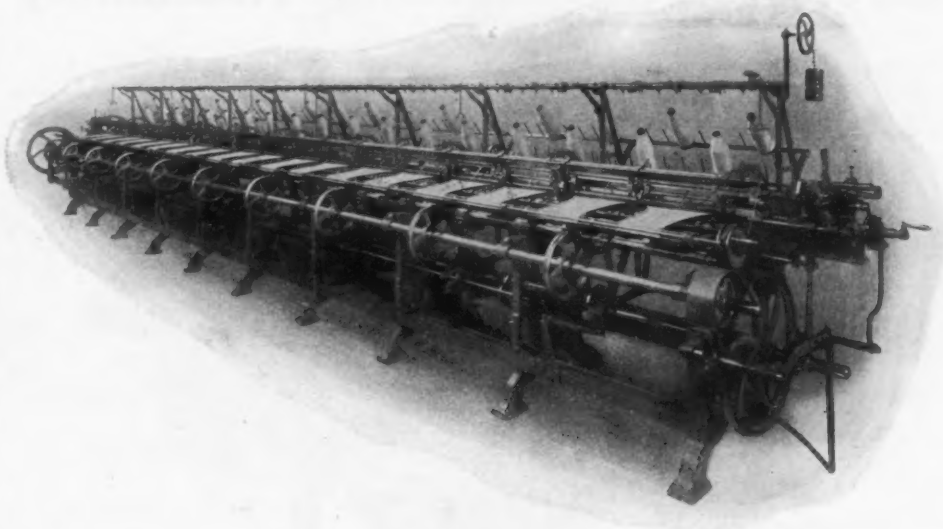
Post Office Address,
Logan Station, Philadelphia

Full Fashioned Hosiery Machines

BUILT BY

SCHUBERT & SALZER

Largest Manufacturers of all classes of Hosiery Machines.



Best constructed and most productive machines in the market for the manufacture of Full-Fashioned Hosiery in Cotton, Lisle or Silk.

Split-Sole, Plating, 2, 3 or 4 Color Striping
Single or Double Lace Attachment.

Also: New Jacquard Lace Hosiery Machines.
Ribframes Winders

REFERENCES:—All the leading manufacturers of full-fashioned hosiery in this country.

AMERICAN REPRESENTATIVE:

OTTO WALTHER, 507 Bourse, Philadelphia

Wildman Manufacturing Co.

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Manufacturers of

Circular Rib Knitting Machinery

Automatic
Stop
Motions

Electric
Cloth
Cutters

AUTOMATIC AND PLAIN

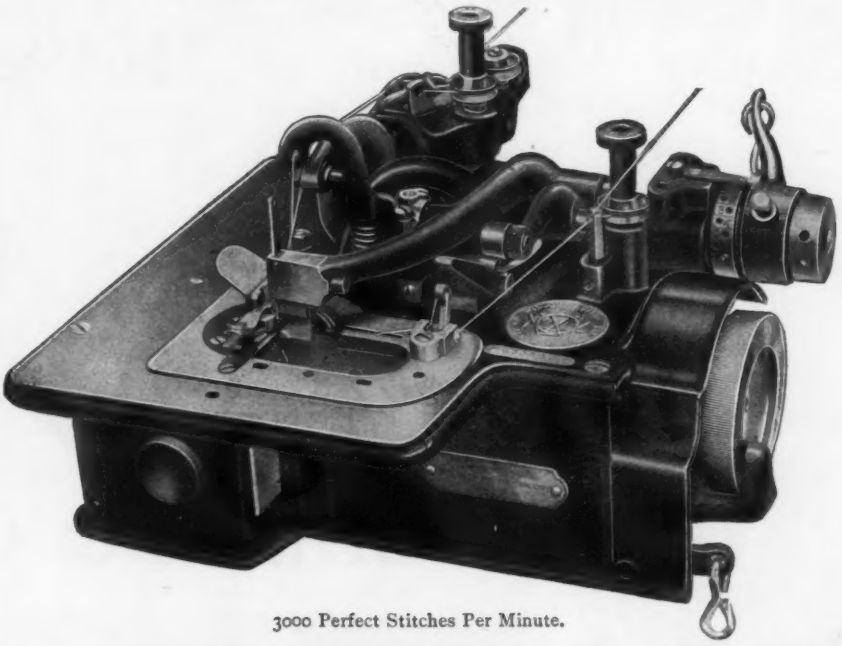
For all classes of Ribbed Hosiery, Underwear, Combination Suits, Sweaters, Etc.

On and After January 1st, 1909

The "OVERLOCK" Machine will be **SOLD** as well as **RENTED.** Prices and terms on application. Machines will be supplied in the order of receipt of application.

EVERYWHERE This TRADEMARK is a Recognized Guarantee of Perfect Sewing Mechanism.

Reg. U. S. Pat. Off.



3000 Perfect Stitches Per Minute.

An Instrument of Precision — The "OVERLOCK" Machine

(REG. U. S. PAT. OFF.)

For making a strong, elastic,. trimmed and covered Seam, Hem or Overedge in one operation on

Knit Goods

for instance, Ribbed, Flat and Fancy Underwear, Sweaters, Cardigans, Hose, Half Hose and Bathing Suits.

For making an Ornamental Overedge, plain or scalloped, or Artificial selvedge on

Woven Fabrics

for instance, Lace and Novelty Curtains, Wrappers and Petticoats of Flannelette and Lawn; Waists, Ribbons, Bed Quilts, Belts and the hundred and one articles of wearing apparel, Decorative Fabrics, etc.

Willcox & Gibbs Sewing Machine Co.

General Offices, 658 Broadway cor. Bond St.
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WILLCOX & GIBBS SEWING MACHINE CO., Limited

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Edouard Dubied & Co.,

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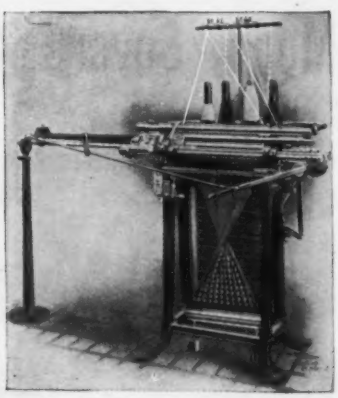
Leading Manufacturers of

Flat Knitting Machines

For Hand and Power
Full Automatic, Etc.



Best constructed and most productive machines on the market for manufacturing sweaters, gloves, sporting goods, etc. *For particulars apply to*

E. O. SPINDLER, Agent,

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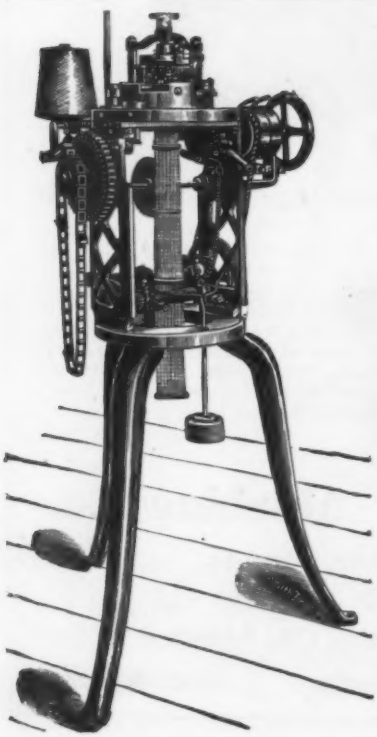

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213-215 Race Street, Philadelphia, Pa.

BUILDERS OF

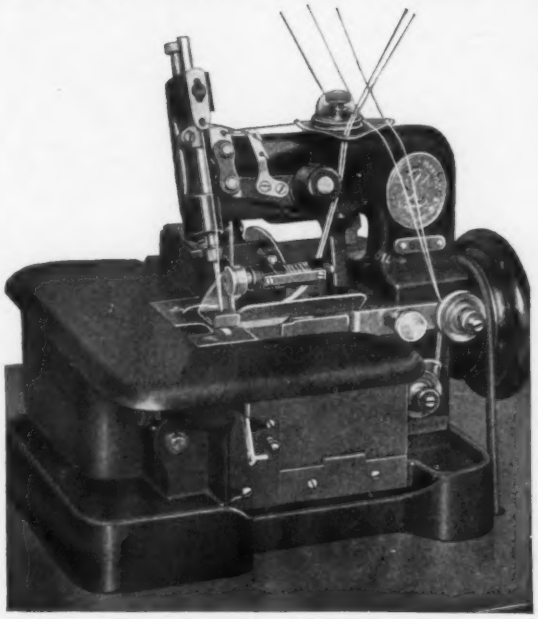
Knitting Machinery

For HOSIERY and UNDERWEAR.

Complete Estimates Furnished. Send for Particulars.

The cut shows our Improved Automatic Ribber with Welt and Slack Course for Half Hose, Tops and Ribbed Legs.

Money Savers for Knit Goods Manufacturers



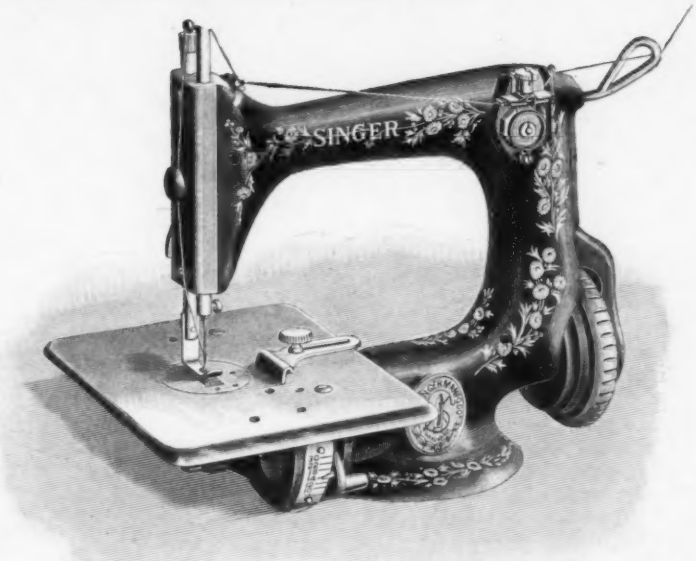
SINGER MACHINE No. 81-3

For Trimming and Overedging at one operation

Thirty-three hundred perfect stitches per minute

Can be fitted for either two or three threads as desired. The goods will not stretch while being stitched and the thread is so laid as to make a flat and handsome elastic chain-stitch seam.

SINGER MACHINE No. 24-26



Makes a single thread, elastic, chain-stitch, eight to thirty stitches to the inch, and can be run at a speed of 2500 to 3000 stitches per minute. It is especially adapted for fine seaming of knit goods.

Send today for samples of work to

Singer Sewing Machine Co., Room 3613, Singer Building, New York

SELLER — The Direct Line — Textile World Record — BUYER

The place to advertise textile machinery and mill equipment is where most others in the same line advertise.

An old subscriber (since 1880) said recently: "When I need new machinery I always look in the TEXTILE WORLD RECORD because it contains the advertisements of all the builders of textile machinery." In no other journal can there be found anywhere near as many textile machinery and supply advertisements. The reasons are plain: it is the *only* practical process journal and issue by issue its reading pages contain such information regarding new machinery, processes, methods and inventions that is a real aid to everyone interested in the manufacturing end of the textile industry.

It aims to get at the facts and the truth in the important questions affecting this industry.

It is the most widely quoted textile authority in this country and Europe.

It is not a market report paper, but a magazine to be read at leisure, and kept for reference.

A very large number of the principal manufacturers, textile mill officials, superintendents and foremen, are and have been for years, regular subscribers, as it appeals to intelligent men of broad as well as special interests in subjects connected with the products and processes of textile manufacture.

TEXTILE WORLD RECORD

LORD & NAGLE CO., Publishers

"Nothing so Good as a Good Finish"

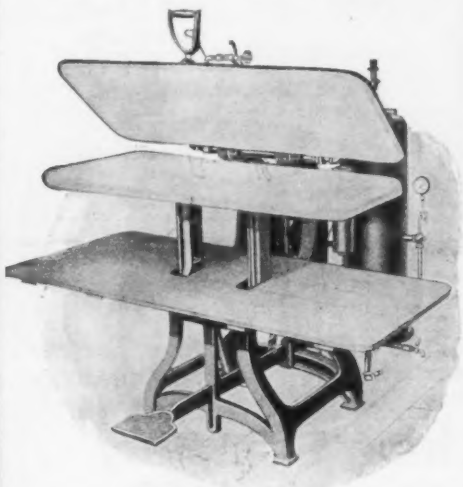
We are speaking of the finish on Knit Goods as produced by the

Hoffman Press

Presses a full garment in one operation, leaving it smooth and of fine finish.

Will not break buttons.

Floor space required—4 feet square.



The "Hoff-Man" F.

Write us for prices, particulars and illustrated catalogue

United States Hoffman Company

229 Temple Street

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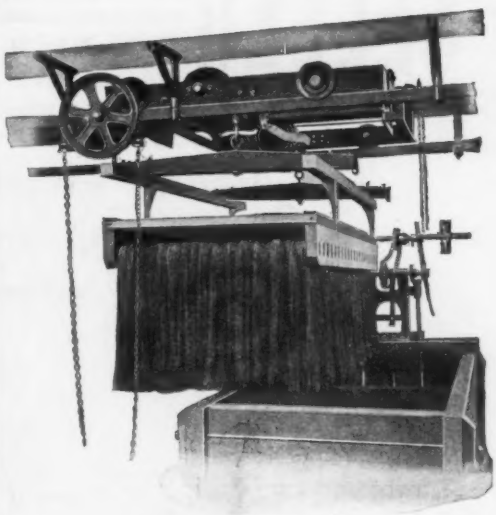
All Infringements Will Be Prosecuted.



300 Pounds Yarn Suspended From Compressed Air Hoist.

H. H. Brown & Sons Co., Paterson, N. J. Wrote us on December 9, 1908:—

"We are pleased to inform you that the machines are giving us entire satisfaction and the results of the dyeings are very satisfactory. We are very thankful to you for the information as regards the erection and operation of the machines."

These machines have just been installed by the H. H. Brown & Sons Co. for dyeing yarns, AFTER A THOROUGH EXAMINATION OF ALL OTHER MACHINES.

We will be glad to furnish all particulars and catalog to anyone interested.

HUSSONG DYEING MACHINES — SAVE ⅓ DYES ½ STEAM ¾ LABOR — DOUBLE PRODUCTION

Hussong Dyeing Machine Co.

Groveville, N. J.

Higher Speed

To Reduce Cost of Production by Increasing Output of Operators

Higher Efficiency

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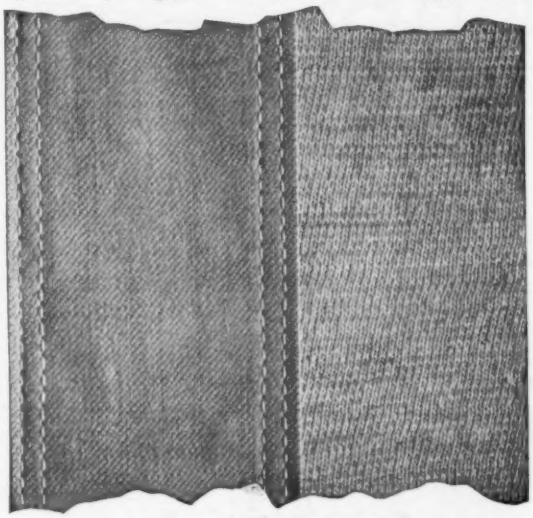
Multiple Needle Machines

For all Multiple Needle Operations, whether for Ornament or for Service, where it is desired to have a plurality of parallel rows of stitching, needles spaced as desired

Yielding Bottom Presser Foot to be used where different thicknesses of Fabric are being Stitched Simultaneously



Special Fittings and Attachments now ready for Numerous Manifold Operations

Greater Simplicity

Style 16100 A-4 Needles-8-80-8 Gauge Stitching Front Facings to Shirts One Operation

Greater Durability

Union Special Machine Company

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BOARDS FOR FAST BLACK DYERS.

HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

JOS T. PEARSON 1815-21 TAYLOR ST. KENSINGTON PHILA

Hosiery Boards.

James Taylor, 121 Arch Street, Phila., Pa.

DEALER IN NEW AND SECOND HAND

Knitting Machinery

Wishes to call the attention of the manufacturers of Ribbed Hosiery and Underwear to the new patented

Double Acting Attachments for Ribbers

sold on its merits only. Here are a few of its MERITS:

Double Production; as it is double acting; fills your orders in half the time or more orders in the same time; you produce in six months what it now takes you one year to do; does the work of two machines.

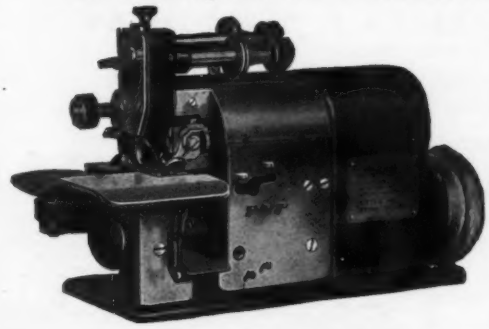
Costs Less; requires just half the space, that means less rent or investment; weigh or measure the product, then compare with present methods; makes a good RIBBER better. New parts all built on the interchangeable PLAN. We are changing over either WILDMAN, BRINTON or SCOTT & WILLIAMS MAKES of machines.

Call and see machines on exhibition at 121 Arch St., Phila.

The Merrow

FAST
DURABLE
Light Running

High Speed Overseaming, Overedging and Scallop Stitch Machines are



OUR STYLE 60 MACHINE for Trimming and Overseaming in one Operation produces the strongest, best Seam and does it with the greatest economy.

USE STYLE 18 for Horse Blankets. STYLE 17 or 22 for Bed Blankets. STYLE 35 B SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

Send for Catalogue and Samples.

THE MERROW MACHINE CO. HARTFORD, CONN.

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EXCELSIOR KNITTING MACHINE MFG. CO.

Meadow and Washington Streets

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BUILDERS OF

Full Automatic Knitters

With or without **Transferring Device**

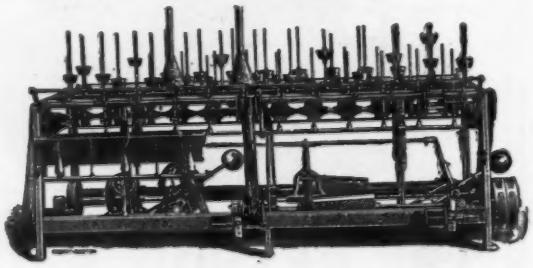
ALL SIZES AND GAUGES, 2 1-4 INCH TO 4 INCH

CIRCULAR KNITTING MACHINES

Either plain or full automatic, with stop motions complete. 4 to 24 feeds for

RIBBED UNDERWEAR

Automatic Racking and Striping Machines for Sweaters, Cardigans, Collarettes, Cuffs and Anklets.



ALSO BUILDERS OF THE WELL-KNOWN

ABEL WINDERS, SEAMERS and LOOPERS.

LEIGHTON MACHINE CO., - Manchester, N. H.

The Invincible

Full Automatic.

"The KNITTER that KNITS"

THE LARGEST PRODUCER OF PERFECT WORK.
SIMPLE, POSITIVE AND EASY TO OPERATE.

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PHILADELPHIA OFFICE,
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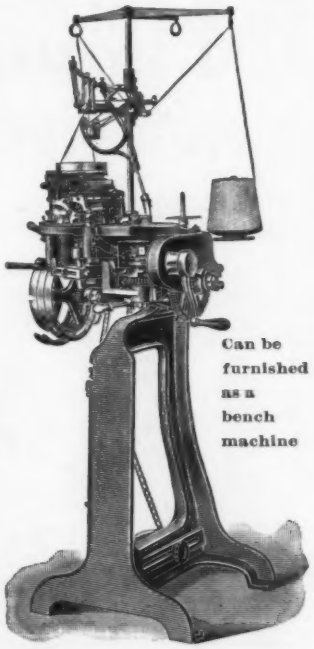
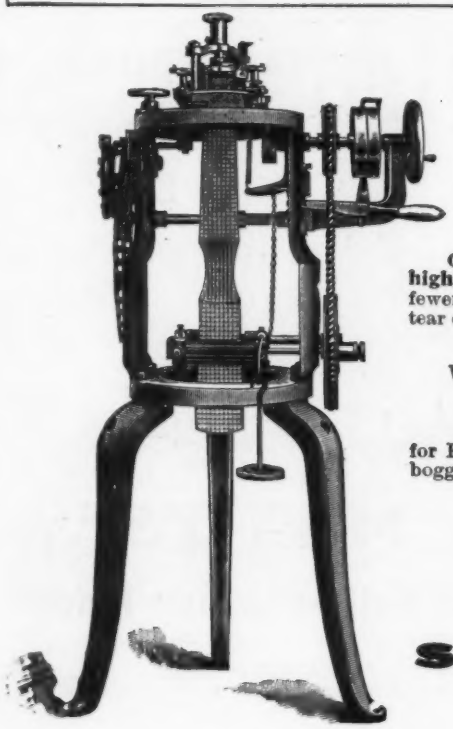


Can be furnished as a bench machine



High Speed Rib Knitting Machinery.

Our latest model machinery has been designed to run at very high speed, giving large production. This is accomplished with fewer seconds, less breakage of needles, less jar and wear and tear on machines than has been customary at lower speeds.

We also make Special

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for Fancy Golf Stockings, Bathing Suits, Sweaters, Toques, Toboggan Caps, Skirts, etc.

Our Machinery gives large production at low cost and enables manufacturers to meet the market always and make a profit.

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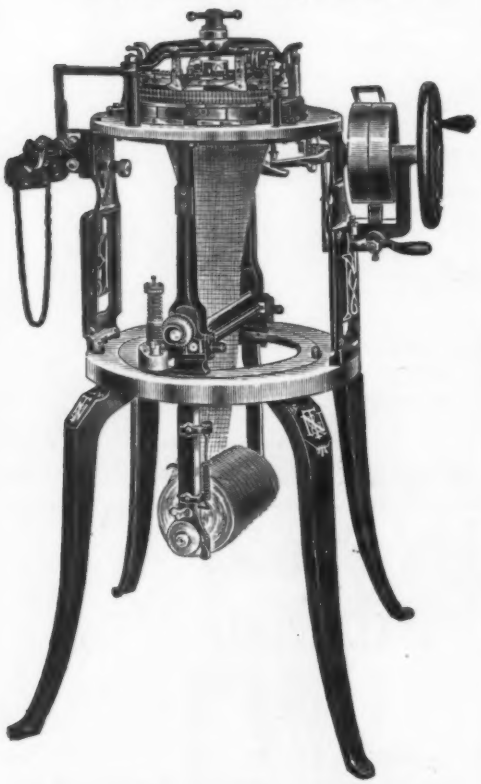

Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

LATEST IMPROVEMENTS
QUALITY OF FABRICS AND PRODUCTION
UNEXCELLED

NYE & TREDICK CO.

If You Want

Largest Production For Least Money

Write

Geo. D. Mayo Machine Co.,

Laconia, N. H.

Latest
Simplest
Best

MAYO'S

New Full Automatic Knitter

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KNICKERBOCKER BLDG., COR. SIXTH AND ARCH STS.,
B. M. DENNEY, REPRESENTATIVE.

Established 1870.—Incorporated 1890.

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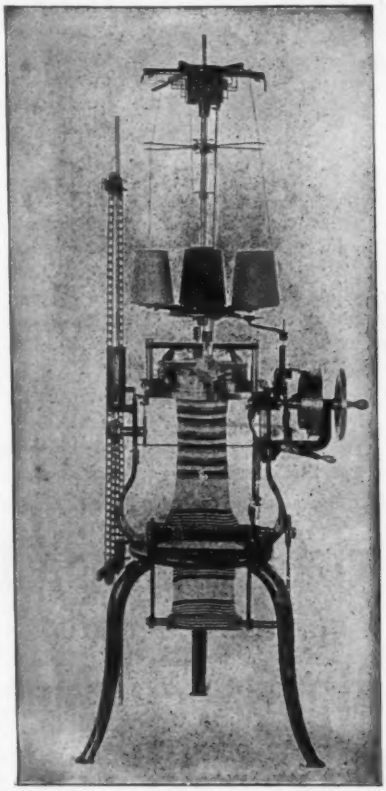
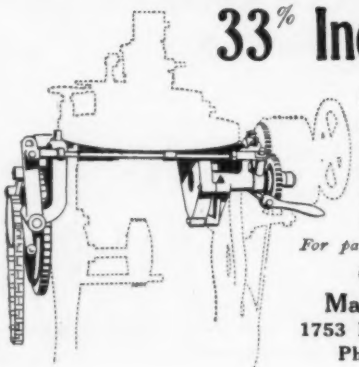
Manufacturers of

Spring and Latch Needle Machines for both rib and plain work, producing a great variety of fabrics. Patent removable hardened Wing Burr Wheels.



Improved Automatic 3-Colored Plain Striper.



33% Increase

in production of Circular Rib Knitting Machines is obtained with our attachments.

For particulars address

Climax Machine Co.
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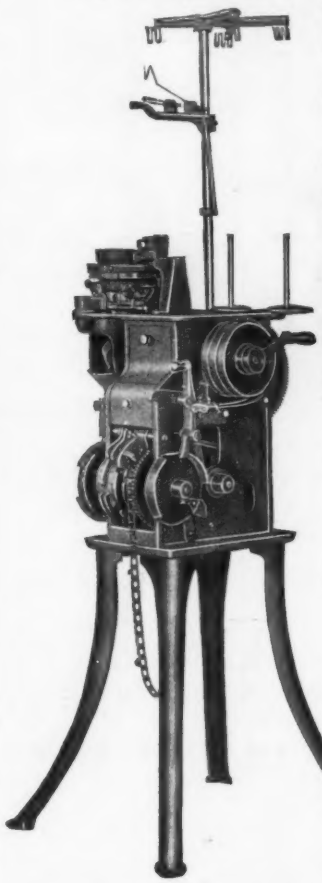
Philadelphia

"THE BANNER"

Hemphill's Latest

A FULL AUTOMATIC MACHINE

Specially adapted to



Plaited Goods

and

String Work

also

High Splice

and

Double Sole

Largest Production

More Yarn Changes

Highest Speed

Simplest

Least Repairs

Produces a Superior Quality of Work.

MANUFACTURED BY THE

Hemphill Mfg. Co.

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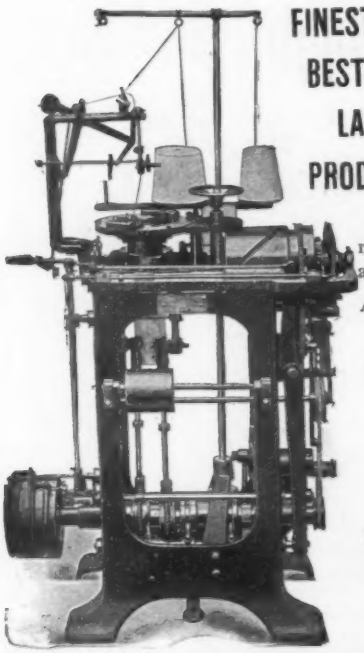
"NATIONAL"

Stands for



FINEST GAUGES
BEST FABRIC
LARGEST
PRODUCT ON

Greatest Variety of Laces and Novelties.

Allautomatic.

Lowest Cost for Operating

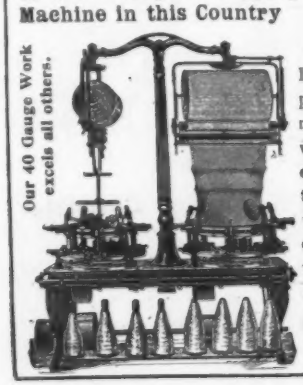
Also Rib Knitting Machinery, Overedge, Crochet and Shell Stitch.

NATIONAL AUTOMATIC KNITTER CO.

728 Cherry Street, PHILADELPHIA, PA.

We are the Oldest Manufacturers

of this Design of Spring Needle Knitting Machine in this Country



40 years' experience

Do not be misled by people who became manufacturers in 1903 without any previous experience who are trying to represent that they are the oldest manufacturers. Investigate. Call and see our fine gauge work.

Robt. W. Gormly & Co.
Troy, N. Y.

The New Boss Seamless Knitter

Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

Send for prices and particulars.

THE BOSS KNITTING MACHINE WORKS,
Cor. Elm and Reed Sts., Reading, Pa.

"Acme" and "Hemphill"

SEAMLESS HOSIERY

Knitting Machines

built by

Mayo Knitting Machine & Needle Company

Franklin, N. H.

Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

Manufacturers like our Latch Needles

because we make a superior grade of needles.

Philadelphia Office, Knickerbocker Bldg.

STANDARD MACHINES FOR HOSIERY MAKING

The STANDARD F, with attachments, can make any and all of these fabrics:

Plain Goods
Plaited Work
Three Color Stripes
Tipped Heel and Toe
White Foot
Changed Heel and Toe
Garter Top
Loopers Slack Course

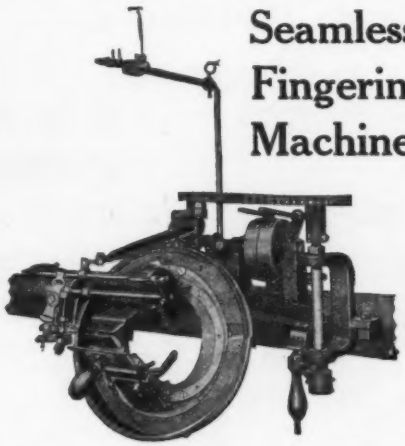
Most Stockings—Best Fabrics—Longest Life

Standard Machine Company

OFFICE AND SHOW ROOMS

330-340 North 12th St., Philadelphia

Seamless Fingering Machine



Knit Glove Manufacturers

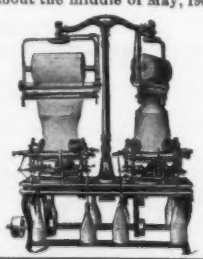
If you want to be up to date, ask us for particulars of this machine. Indorsed by leading manufacturers.

James Leckie & Son,
821 N 13th Street, Phila, Pa.

We Are the Oldest Manufacturers
IN THE WESTERN HEMISPHERE
Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:
Cross Question 123. How long have you been a manufacturer of knitting machines? Answer. I started in this business about the middle of May, 1900.



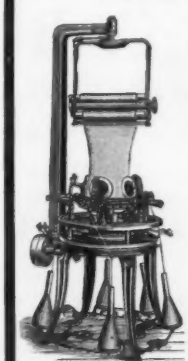
Tompkins Knitter

This design was adopted in 1875.
BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLY Was born, according to his testimony in the case above cited.

CHARLES COOPER,

BENNINGTON, VERMONT,

MANUFACTURER OF



Knitting Machinery

Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Tri:k Cylinder, **Spring Needle Cylinder Rib-Top Machines** for making Cuffs, Drawer Bottoms and Shirt Borders.

Spring and Latch Knitting Needles, Burr Wheels, Burr Blades, Sinkers, Jacks, etc.

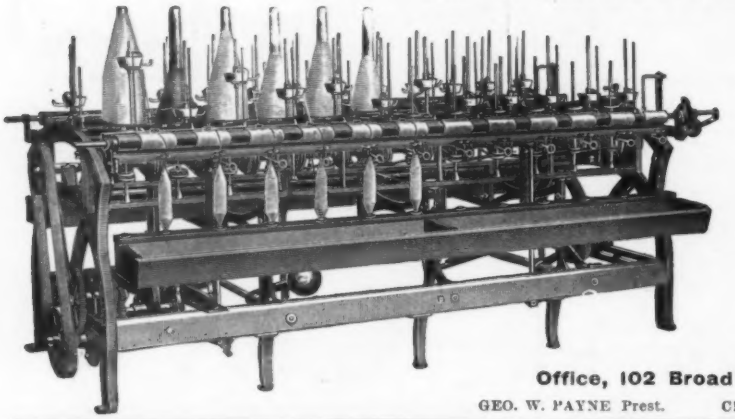
COLLARETTE ATTACHMENT

American Representative:
G. H. ROGERS,
509 Clinton Street, Hudson, N. Y.

European Representative:
FELIX LEDERER,
1x/4 Schubertgasse, Nr. 22, Vienna, Austria.

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers,
Wind for Cop, Skein or Bobbin.



Improved

Upright Spoolers,

To Spool from Cop, Skein or Bobbin.

Doubling Spoolers for doubling 2, 3, or more ends into one.

Upright Quillers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler, Guides, Bolsters and Stops Made and Repaired at Short Notice.

GEO. W. PAYNE CO.,

[Est. 1865. Inc. 1903.]

Office, 102 Broad Street, Pawtucket, R. I.

GEO. W. PAYNE Prest. CLINTON F. PAYNE, Sec'y. and Treas.

HEPWORTH & CO.'S

Patent Single-Stitch

LOOPING MACHINE.

Needle working from the inside, avoiding the breaking of needles and points and picking up the metal.

Single and Double Stitch, or Both Combined.

JOHN W. HEPWORTH & CO.,

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MAKER OF

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Latest Styles.
Best Workmanship.

Drying Form Boards

OF EVERY VARIETY.

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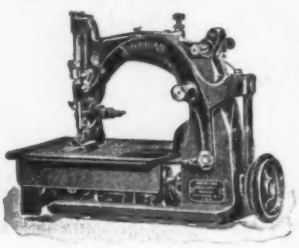
PHILMONT, N. Y.

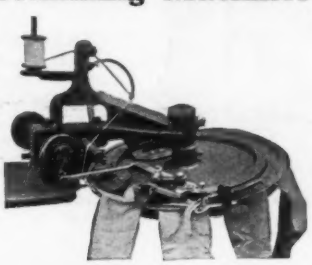
MANUFACTURERS AND PATENTEES OF

High Speed, Elastic Stitch Sewing and Trimming Machines



Also ravelling machines for making knit underwear and hosiery full fashioned.

2 line and twin needle machines for fancy stitching.



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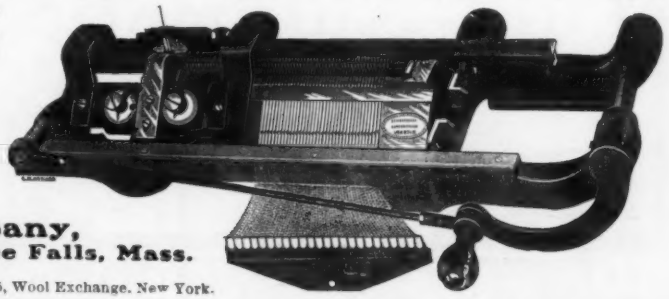
LEADER OF KNITTERS

Original and Still the Best.

Most widely used; being operated in every civilized country in the world. For description, prices, etc., see catalogue.

Circular Machines,
Rib Top and
***Seaming* Machines.**



Lamb Knitting Machine Company,
P. O. Box, 5888, **Chicopee Falls, Mass.**
J. E. WOODHEAD, 100 22d St., Chicago.
L. D. SANBORN, Room 505, Wool Exchange, New York.

David Richter, Inc.

were the first machine builders in Chemnitz, Germany, to construct

Full Fashioned Hosiery Machines

upon the Cotton principle and which since their introduction have never been excelled by any other machine builder; be it in construction or productiveness. Built in all gauges and for any material, cotton, wool, lisle or silk.

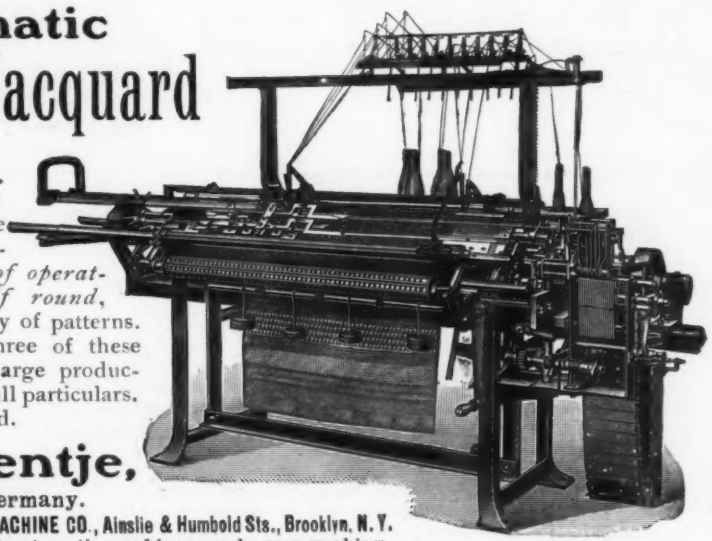
Sole American Representative,

Hugo Huettig, 581 Bourse, Philadelphia

Full Automatic
Noppen & Jacquard

for high-grade sweaters, jerseys, etc. Latest improvements

Recognized as the best in the market. With Jacquard attachment allowing *change of operating mechanism every half round*, therefore unrivaled in variety of patterns. One operator attends to three of these machines. High speed. Large production. Ask for samples and full particulars. State gauge and size you need.



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Representatives, **AINSLIE KNITTING MACHINE CO., Ainslie & Humbold Sts., Brooklyn, N. Y.**
Where all kinds of our hand and automatic machines can be seen working.

PAXTON & O'NEILL'S

Full Automatic Knitter

FOR ALL KINDS AND GAUGES OF SEAMLESS HOSIERY.
RANGE ON HALF HOSE AND LADIES FROM 260 NEEDLES DOWN.

3-4 AUTOMATIC KNITTER

With Lace Effects.

Exclusive rights to BROWN'S LACE ATTACHMENT.

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MANUFACTURERS OF
RIBBERS
SPLICERS
SLEEVERS

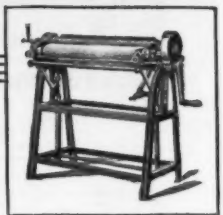
¶ OUR LATEST IMPROVEMENTS MAKE OUR RIBBER NOISELESS IN OPERATION.

¶ WOULD BE PLEASED TO SUBMIT SAMPLES OF FABRIC.

¶ MACHINES SHIPPED TO RESPONSIBLE PARTIES ON THIRTY DAYS TRIAL.

¶ WE ARE PREPARED TO CUT CYLINDERS AND DIALS PROMPTLY AND ACCURATELY.

This Ironing Machine

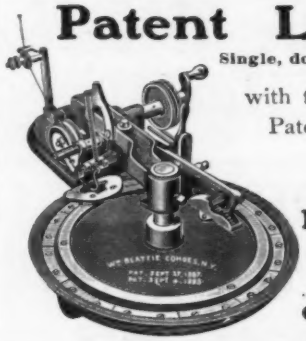


Is the ideal thing for the small plant for ironing knit goods, etc. It is operated by hand or power and heated by gas or gasoline. Made in several sizes. Largest size costs about 2c. per hour for heat. Pressure is adjustable.

Write for particulars.

STEEL ROLL MACHINE CO.
254 B. Madison St., Chicago, Illinois

Patent Loopers



Single, double and two thread Stitch.

with the
Patent Raised
or
Straight Points.

Beattie Manufacturing Co.,
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Automatic Machine Works

GEO. W. STEVENSON, Inventor and Proprietor — 315-315½ Elm Street, Reading, Pa.

Builders of

Automatic Singeing Machine and The Cold Hosiery Press.

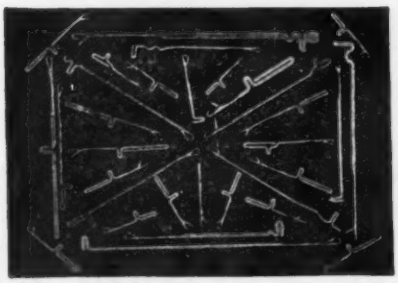
The Automatic Singeing Machine is the only machine on the market equipped with a **Patent Single Plate Positive Stripping Device,** which saves gas, hose and labor. Built in two sizes double and single feed.

The Cold Hosiery Press is very simple to operate, is less expensive, no complicated parts and requires very little power. With this press the life of the yarn is retained and the finish of the hosiery after coming out of the press cannot be equalled by any other press hot or cold. The press is built in two sizes.

For further information address as above

TRY OUR "SUPERIOR" OR SUNKEN RIVET-HEAD NEEDLES

They will save you money.



Dodge Needle Co., Manchester, N. H.

WM. COREY CO.,

Manufacturers of Knitting Machine

Latch Needles

MANCHESTER, N. H.

EXCELSIOR NEEDLES.

The best Hosiery Needles in the market.

Manufactured by

WARDWELL NEEDLE CO., Lakeport, N. H.

WM. BREEDON'S SON,

MANUFACTURERS OF

Spring Knitting Needles

AND BURR BLADES OF ALL KINDS.

AMSTERDAM, - N. Y.

KEYSTONE LATCH NEEDLE CO.

JOHN C. EGLY, MGR.

MANUFACTURERS OF

Patent and Regular Latch Needles

Needles for all makes of Knitters and Ribbers.
Keystone Spring Bottom Needles for all makes of Knitting Machines always in stock for immediate delivery.
Special Needles made to order.

543 W. Lehigh Avenue, Philadelphia, Pa.

Standard Latch Needles

MANUFACTURED BY

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The Largest Manufacturers of Machine Needles in the World.

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TRADE MARK.

Longer Wear. Better Work.
Less Mending. Fewer Seconds.
Have you tried our
Patent Milled Rivet?

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L. T. IVES CO.

Manufacturers of all kinds of

SPRING KNITTING NEEDLES

NEW BRUNSWICK, N. J.

The CRAWFORD

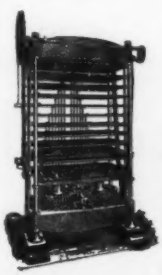

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PLATE PRESS

For Knit or Woolen Goods.

The most reliable machine of the kind on the market.

PRESS PAPERS and FENDERS.

SPENCE & RIDEOUT,

Successors to

J. J CRAWFORD & SON,

NASHUA, N. H.

Established 1868.

The Continental Latch Needle Company.

Manufacturers of the BEST GERMAN NEEDLE on the Market.

RIVETS GUARANTEED. **Samples on application.** SPRING NEEDLES A SPECIALTY.

120-122 LIBERTY STREET, - - - - - - - - - NEW YORK.

McCormick Turbines

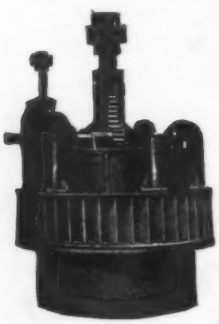
both Cylinder and Wicket Gate, giving **ENORMOUS** power are used in hundreds of textile mills throughout the world.

We make a specialty of designing turbines to meet the requirements of the public.

We build Francis turbines in spiral flumes to operate under high heads.

Boston Office, 176 Federal Street.

S. MORGAN SMITH COMPANY, York, Pa., U.S.A.



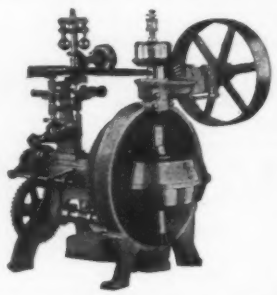
Risdon-Alcott Turbine Co.

MOUNT HOLLY, NEW JERSEY, U. S. A.

RISDON CELEBRATED TURBINE
ALCOTT HIGH DUTY TURBINE
LEVIATHAN HINGED GATE TURBINE

On Horizontal or Vertical Shafts.

These Turbines are recognized as the most effective water wheels made. Your inquiries should come direct to us for this class of machinery.



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OUR compensating type more fully meets the needs of Textile Mills than any other. This is due to its being the only successful quick acting, mechanical, governor and its perfect control of large as well as small changes. 1500 of this type in use in mills and electric power plants.

Woodward Governor Co., Rockford, Ill.

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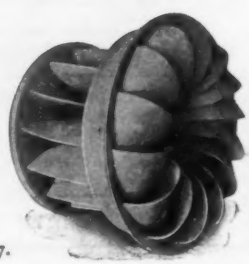
CYLINDER OR BALANCE GATE CASING

Highest Efficiency, Greater Power,
Easy and Quick Regulation,
Steady Motion, Durability.



RODNEY HUNT MACHINE CO.

ORANGE, MASS.

BRANCH OFFICE: 70 Kilby St., Boston, Mass.

See our Woolen Machinery advertisement on page 47.

ANNOUNCEMENT

Is hereby made of the consolidation of

American Blower Co. of Detroit

and

Sirocco Engineering Co. of New York

All business will hereafter be transacted under the style and name of

AMERICAN BLOWER CO.

(Incorporated under the laws of the State of New York.)

All patents covering broadly the principle and construction of the "Sirocco" type of blower are acquired and controlled. Imitators and infringers will be prosecuted and important suits now pending will be continued.

See notice in this issue

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Principal offices, Detroit, Mich.

Works at Detroit, Mich. and Troy, N. Y.

Chicago New York London

Oils

E. W. Murphey & Co.

HUDSON, N. Y.

Established 1831.

Sewing Machine Belting, Press Boards, Belt Hooks, Lace Leather, Leather Belting, Latch Needles, Oilers of every description, Mill Baskets and Brooms, Mill Banding, Rings and Springs, Packings of all kinds, Fire Pails, Shears and Trimmers, Cloth Knives, Etc.

and Mill Supplies

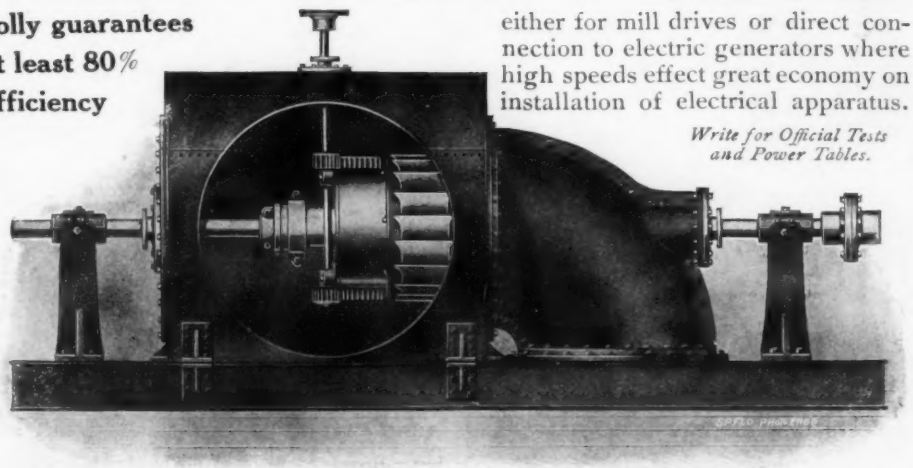
Water Wheels

made to meet all requirements

Jolly guarantees at least 80% efficiency

either for mill drives or direct connection to electric generators where high speeds effect great economy on installation of electrical apparatus.

Write for Official Tests and Power Tables.



J. & W. Jolly, Inc. 500 East St., Holyoke, Mass.

Manufacturers of the Original "McCormick Holyoke Turbine." Both Vertical and Horizontal.

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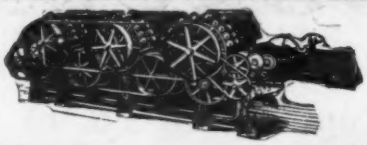
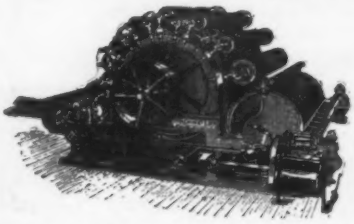
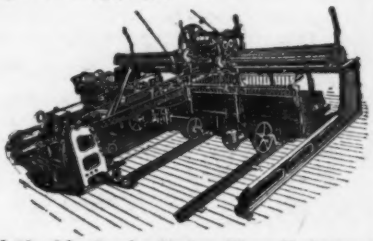


CARNETT MACHINES AND PICKERS

For reducing to Fibre Cotton and Wool Waste, Cloth Clippings, Etc.



WOOLEN MILL MACHINERY



Including Rag, Wool and Burr Pickers, Wool, Worsted and Shoddy Cards, Mules, Yarn Twisters, Warpers, Dressers, Spoolers, Etc.

Complete Equipment for Manufacturing Cotton Batting for All Purposes.

Special Carding and Spinning Machinery for manufacturing Yarn from such low grade stock as Mill Sweepings, Linters, Etc.

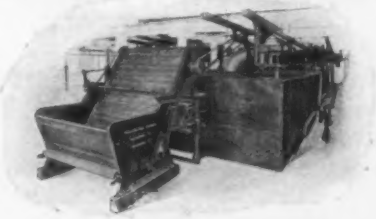
We reclothe or furnish new Metallic Toothed Cylinders and Rolls and relagg or furnish new Cylinders for any make of Rag Picker.

SMITH & FURBUSH MACHINE CO., Hancock and Somerset Streets, **PHILADELPHIA, PA., U. S. A.**

FIRE PROOF "PROCTOR" DRYERS

Formerly the "CYCLONE"

Built entirely of STEEL; no woodwork. All trouble with aprons overcome by the Inter-Locking Chain Conveyor. "It needs no adjustment."



"Proctor" Dryer, Feed End.

The Inter-Locking Chain Conveyor Separate From Dryer.

Dryers for Cotton Stock, Wool, Rags, Cloth, Hosiery, Yarn, Underwear, Etc.

Complete Carbonizing Outfits. Iron Bowl Yarn Scouring Machines.
Ventilating Fans.

THE PHILADELPHIA TEXTILE MACHINERY CO., Hancock and Somerset Streets PHILADELPHIA, PA., U. S. A.

CELL DRIER MACHINE CO.

TAUNTON, MASS.

BOSTON OFFICE, 147 MILK STREET

¶ We claim that the principle of the **CELL DRIER** is applicable to all Fabric drying propositions.

¶ As wide as a Sheet, as narrow as a Web, no matter how much water has been absorbed.

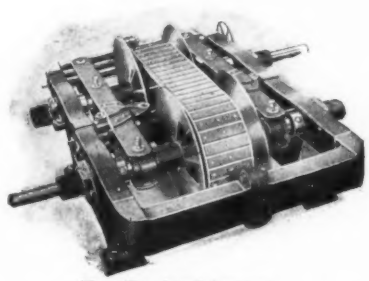
¶ Equally efficient on all Textiles, we retain the principle and design suitable installations.

¶ When no floor space is available, we hang our dryers to the ceiling, entirely out of the way.

¶ Write for information.

THE MILL EQUIPPED WITH

"Reeves" Variable Speed Transmission



for regulating the speed of Slashers, Singers, Drying Cylinders, CELL DRIERS, Printing and Dyeing Machines, Steam Agers, Tenter Frames, Dampeners, etc., produces the best and most reliable results. *Scrap* your cones.

Enquire of those who are using them.

Reeves Pulley Company,
Columbus, Indiana.

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CELL DRIER MACHINE COMPANY,
Taunton and 147 Milk St., Boston, Mass.

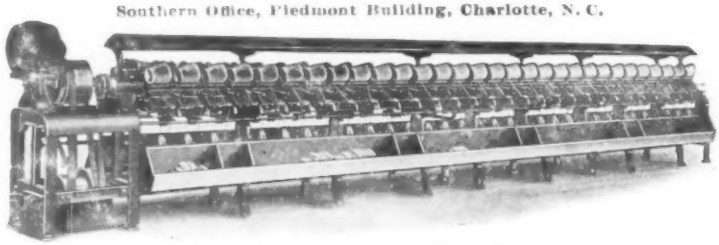
New York Representatives,
PATTERSON, GOTTFRIED & HUNTER,
146-150 Centre Street.

Foster Machine Company

WESTFIELD, MASS.

Southern Office, Piedmont Building, Charlotte, N. C.

Cone Winding.
Tube Winding.
Skein Winding.
Quill Winding.
Doubling.



Both "Open" and "Close" Winding Machines for every branch of textile manufacturing.

New Model No. 12 Cone and Tube Winder.

Lombard's "New Century" Cards

(RAE'S SYSTEM)

1. More carding on our 2-card set than on 3-card set, old style.
2. More and better mixing than on any other card made.
3. Less waste, less power, less room, less card clothing.
4. The only improvement on cards that has been proven a success. Come and see them running.

The Lombard Machine Co.,
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Automatic Regulation of Humidity

Without Regulating Attachments.

The Bell Humidifier has no spray devices whatever. It provides moisture ready for evaporation.

Investigate by writing to

Bell Pure Air & Cooling Co.

91 West Street, New York

Eastern Office, 141 Milk St., Boston

Walworth Manufacturing Co.,

HIGH PRESSURE

VALVES AND FITTINGS

"Walmanco" Pipe Flanges
"Never Stick" Blow-off Cocks, Mill Supplies.

GENERAL OFFICES;

128 FEDERAL STREET, BOSTON, MASS.

New York Office: Park Row Building.